

Table II-11 (1/11) List of Irrigation Canal (Seberang Perak Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
<b>Main Canal</b>	8,370.0	8,708.5	20,900.4	10,450.2	1	Earth canal
<b>Branch Canal</b>						
Left Branch Canal	22,320.0	4,365.0	10,476	5,238	35	Earth canal
Right Branch Canal	16,430.0	4,343.5	10,424	5,212	5	Earth canal
Branch Canal L1	2,790.0	2,177.7	5,226	2,613	1	Earth canal
Branch Canal L1b	5,270.0	1,634.2	3,922	1,961	9	Earth canal
Branch Canal R4	5,115.0	731.4	1,755	878	5	Earth canal
<b>Total</b>	<b>51,925.0</b>				<b>55</b>	
<b>Secondary Canal</b>						
Left Branch Canal Sub-Scheme						
S1L	2,480.0	282.5	678	339	3	Earth canal
S2L	1,860.0	168.5	404	202	3	Earth canal
S3L	4,340.0	712.4	1,710	855	20	Earth canal
S4L	1,891.0	351.5	844	422	4	Earth canal
S5L	1,550.0	472.9	1,135	567	4	Earth canal
<b>Total (Left Branch Sub-Scheme)</b>	<b>12,121.0</b>				<b>34</b>	
Right Branch Canal Sub-Scheme						
L1c	3,100.0	244.4	587	293	7	Concrete lining
L1b1	3,410.0	246.7	592	296	8	Concrete lining
L1b2	3,410.0	234.4	562.6	281.3	8	Concrete lining
L1b3	3,100.0	211.6	508	254	8	Concrete lining
L1b4	2,635.0	186.6	448	224	6	Concrete lining
L1b5	2,170.0	158.8	381	191	5	Concrete lining
L1b6	2,170.0	131.3	315	158	6	Concrete lining
L1b7	2,170.0	114.6	275.0	137.5	6	Concrete lining

(1/11)

Table II-11 (2/11) List of Irrigation Canal (Seberang Perak Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
L1a	2,635.0	153.7	369	184	5	Concrete lining
L1d	775.0	117.1	281	141	6	Concrete lining
L2	2,480.0	149.0	358	179	5	Concrete lining
L3	2,480.0	201.2	483	241	5	Concrete lining
L5	2,790.0	324.6	779	390	12	Concrete lining
L6	2,170.0	191.7	460	230	5	Concrete lining
L7	3,100.0	169.0	406	203	7	Concrete lining
R5	2,325.0	97.0	233	116	4	Concrete lining
R7	2,325.0	320.4	769	384	15	Concrete lining
R8	2,325.0	184.1	442	221	7	Concrete lining
R4a2	1,240.0	64.5	155	77	4	Concrete lining
R4a3	620.0	40.6	97	49	2	Concrete lining
R4b1	2,325.0	156.7	376	188	6	Concrete lining
R4b3	2,170.0	297.7	714	357	11	Concrete lining
R4b4	1,860.0	171.9	413	206	5	Concrete lining
Total (Right Branch Sub-Scheme)	53,785.0				153	
<b>Total (Secondary Canal)</b>	<b>65,906.0</b>				<b>187</b>	
<b>Tertiary Canal</b>						
Left Branch Canal Sub-Scheme						
Block A						
T1S2L	752.9	30.0	72	36	15	Earth canal
T2S2L	2,641.1	34.3	82	41	31	Earth canal
T3S2L	1,860.0	104.2	250	125	31	Earth canal
T1S3L	1,447.8	58.6	141	70	33	Earth canal
T1aS3L	1,535.3	45.0	108	54	27	Earth canal
T3S3L	1,295.4	39.9	96	48	25	Earth canal

(2/11)

Table II-11 (3/11) List of Irrigation Canal (Seberang Perak Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
T3aS3L	1,146.0	38.2	92	46	23	Earth canal
T4S3L	1,243.4	38.5	92	46	20	Earth canal
T4aS3L	914.4	26.8	64	32	17	Earth canal
T7S3L	724.8	21.4	51	26	14	Earth canal
T7aS3L	609.6	22.5	54	27	14	Earth canal
T8S3L	840.9	20.4	49	24	11	Earth canal
T8aS3L	840.9	18.5	44	22	1	Earth canal
T9S3L	792.5	61.7	148	74	12	Earth canal
Direct Tap		52.1	125	63	1	Earth canal
I1	2,015.0	68.5	164	82	28	Earth canal
T2S3L	961.0	42.9	103	51	13	Earth canal
T2aS3L	961.0	26.4	63	32	17	Earth canal
T5S3L	961.0	57.5	138	69	35	Earth canal
T5aS3L	961.0	31.0	74	37	19	Earth canal
T6S3L	961.0	19.7	47	24	11	Earth canal
T6aS3L	651.0	14.6	35	18	10	Earth canal
T10S3L	427.3	8.2	20	10	3	Earth canal
Sub-total	24,543.3	880.9			411	
Block B						
T1S1L	1,155.0	62.8	151	75	21	Earth canal
T2S1L	1,518.0	125.5	301	151	31	Earth canal
T3S1L	2,079.0	94.2	226	113	16	Earth canal
T1S4L	1,221.0	100.4	241	120	25	Earth canal
T2S4L	1,221.0	83.7	201	100	20	Earth canal
T3S4L	1,221.0	67.0	161	80	1	Earth canal
T4S4L	2,046.0	100.4	241	120	1	Earth canal
Sub-total	10,461.0	634.0			115	

(3/11)

Table II-11 (4/11) List of Irrigation Canal (Seberang Perak Scheme)

(4/11)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
Block C						
T2L	2,244.0	149.7	359	180	34	Earth canal
T3aL	1,023.0	32.8	79	39	8	Earth canal
T3L	1,023.0	37.3	90	45	9	Earth canal
T4L	1,914.0	140.2	336	168	30	Earth canal
T5L	1,023.0	73.0	175	88	16	Earth canal
T6L	1,749.0	129.8	312	156	30	Earth canal
T7L	1,023.0	74.2	178	89	16	Earth canal
T8L	1,320.0	93.8	225	113	20	Earth canal
T9L	1,485.0	95.8	230	115	24	Earth canal
T12L	924.0	84.2	202	101	19	Earth canal
T13L	924.0	83.7	201	100	19	Earth canal
T1S6L	1,056.0	91.6	220	110	25	Earth canal
T2S6L	1,056.0	96.2	231	115	26	Earth canal
T3S6L	1,749.0	129.8	312	156	29	Earth canal
T4S6L	1,551.0	114.1	274	137	26	Earth canal
T5S6L	1,122.0	106.2	255	127	26	Earth canal
T6S6L	1,122.0	77.2	185	93	20	Earth canal
T7S6L	1,221.0	82.5	198	99	18	Earth canal
Sub-total	23,529.0	1,692.1			395	
Block D						
T1S5L	1,254.0	90.2	216	108	18	Earth canal
Direct Tap		58.1	139	70	0	Earth canal
T2S5L	1,452.0	256.2	615	307	25	Earth canal
T4S5L	726.0	68.4	164	82	22	Earth canal
T10L	2,244.0	189.1	454	227	39	Earth canal
T11L	1,320.0	133.4	320	160	27	Earth canal

Table II-11 (5/11) List of Irrigation Canal (Seberang Perak Scheme)

(5/11)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
T14L	1,485.0	181.7	436	218	36	Earth canal
T15L	2,079.0	180.9	434	217	37	Earth canal
Sub-total	10,560.0	1,158.0			204	
<b>Total (Left Branch)</b>	<b>69,093.3</b>	<b>4,365.0</b>			<b>1,125</b>	
Right Branch Canal Sub-Scheme						
Block E						
L1c		244.4	587	293	0	Concrete lining
L1b1		246.7	592	296	0	Concrete lining
L1b21	858.0	31.1	75	37	15	Concrete lining
L1b22	858.0	31.1	75	37	15	Concrete lining
L1b23	858.0	31.1	75	37	15	Concrete lining
L1b24	858.0	31.1	75	37	15	Concrete lining
L1b25	858.0	31.1	75	37	15	Concrete lining
L1b26	858.0	31.1	75	37	15	Concrete lining
L1b27	858.0	31.1	75	37	15	Concrete lining
L1b28	594.0	16.7	40	20	9	Concrete lining
L1b31	825.0	15.5	37	19	8	Concrete lining
L1b32	825.0	31.1	75	37	15	Concrete lining
L1b33	825.0	31.1	75	37	15	Concrete lining
L1b34	825.0	31.1	75	37	15	Concrete lining
L1b35	825.0	31.1	75	37	15	Concrete lining
L1b36	825.0	31.1	75	37	15	Concrete lining
L1b37	825.0	31.1	75	37	15	Concrete lining
L1b38	660.0	9.5	23	11	9	Concrete lining
L1b41	825.0	31.1	75	37	15	Concrete lining
L1b42	825.0	31.1	75	37	15	Concrete lining
L1b43	825.0	31.1	75	37	15	Concrete lining

Table II-11 (6/11) List of Irrigation Canal (Seberang Perak Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
L1b4t4	825.0	31.1	75	37	15	Concrete lining
L1b4t5	825.0	31.1	75	37	15	Concrete lining
L1b4t6	825.0	31.1	75	37	11	Concrete lining
L1b5t1	726.0	33.4	80	40	15	Concrete lining
L1b5t2	759.0	40.6	97	49	18	Concrete lining
L1b5t3	825.0	25.1	60	30	13	Concrete lining
L1b5t4	825.0	31.1	75	37	15	Concrete lining
L1b5t5	825.0	28.6	69	34	13	Concrete lining
L1b6t1	660.0	28.6	69	34	13	Concrete lining
L1b6t2	660.0	23.9	57	29	11	Concrete lining
L1b6t3	660.0	14.4	35	17	7	Concrete lining
L1b6t4	660.0	23.9	57	29	11	Concrete lining
L1b6t5	660.0	28.6	69	34	13	Concrete lining
L1b6t6	660.0	11.9	29	14	6	Concrete lining
L1b7t1	297.0	3.5	8	4	3	Concrete lining
L1b7t2	462.0	16.7	40	20	8	Concrete lining
L1b7t3	759.0	22.7	54	27	11	Concrete lining
L1b7t4	759.0	23.9	57	29	11	Concrete lining
L1b7t5	660.0	23.9	57	29	11	Concrete lining
L1b7t6	594.0	23.9	57	29	12	Concrete lining
Sub-total	29,436.0	1,528.4			498	
Block F						
L1c1	825.0	28.3	68	34	13	Concrete lining
L1at1	825.0	28.3	68	34	13	Concrete lining
L1at2	825.0	27.2	65	33	13	Concrete lining
L1at3	825.0	36.6	88	44	17	Concrete lining
L1at4	825.0	30.8	74	37	15	Concrete lining

(6/11)

Table II-11 (7/11) List of Irrigation Canal (Seberang Perak Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
L1at5	825.0	30.8	74	37	15	Concrete lining
L1dt1	1,980.0	22.5	54	27	11	Concrete lining
L1dt2	1,089.0	16.5	40	20	8	Concrete lining
L1dt3	1,155.0	20.1	48	24	10	Concrete lining
L1dt4	726.0	29.6	71	36	14	Concrete lining
L1dt5	429.0	15.4	37	18	8	Concrete lining
L1dt6	429.0	15.0	31	16	7	Concrete lining
L2t1	1,023.0	28.3	68	34	13	Concrete lining
L2t2	1,023.0	30.8	74	37	15	Concrete lining
L2t3	1,023.0	39.0	94	47	20	Concrete lining
L2t4	726.0	23.7	57	28	11	Concrete lining
L2t5	429.0	27.2	65	33	13	Concrete lining
L3t1	990.0	44.1	106	53	19	Concrete lining
L3t2	990.0	44.1	106	53	19	Concrete lining
L3t3	891.0	36.6	88	44	17	Concrete lining
L3t4	891.0	36.6	88	44	17	Concrete lining
L3t5	891.0	39.8	96	48	19	Concrete lining
RBCt1L	594.0	34.3	82	41	1	Concrete lining
RBCt1	396.0	15.8	38	19	9	Concrete lining
L5t1	759.0	30.0	72	36	13	Concrete lining
L5t2	825.0	23.7	57	28	11	Concrete lining
L5t3	759.0	30.0	72	36	13	Concrete lining
L5t4	825.0	30.8	74	37	15	Concrete lining
L5t5	561.0	25.2	60	30	11	Concrete lining
L5t6	825.0	33.1	79	40	15	Concrete lining
L5t7	561.0	25.2	60	30	11	Concrete lining
L5t8	792.0	28.3	68	34	13	Concrete lining

(7/11)

Table II-11 (8/11) List of Irrigation Canal (Seberang Perak Scheme)

(8/11)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
L5i9	759.0	37.9	91	45	17	Concrete lining
L5i10	792.0	23.7	57	28	11	Concrete lining
L5i11	528.0	13.0	31	16	7	Concrete lining
L5i13	528.0	23.7	57	28	11	Concrete lining
L6t1	759.0	23.7	57	28	11	Concrete lining
L6t2	759.0	23.7	57	28	11	Concrete lining
L6t3	759.0	23.7	57	28	11	Concrete lining
L6t4	759.0	26.0	62	31	13	Concrete lining
L6t5	1,023.0	27.2	65	33	13	Concrete lining
L6t6	1,254.0	67.4	162	81	28	Concrete lining
L7t1	759.0	23.7	57	28	11	Concrete lining
L7t2	759.0	30.8	74	37	15	Concrete lining
L7t3	693.0	24.8	60	30	12	Concrete lining
L7t4	198.0	9.4	23	11	6	Concrete lining
L7t5	627.0	20.1	48	24	10	Concrete lining
L7t6	726.0	28.3	68	34	13	Concrete lining
L7t7	594.0	31.9	77	38	12	Concrete lining
Sub-total	38,808.0	1,384.0			631	
Block G						
R4a1t1	1,023.0	13.6	33	16	7	Concrete lining
R4a1t2	792.0	11.2	27	13	6	Concrete lining
R4a1t3	660.0	9.0	22	11	5	Concrete lining
R4a1t4	528.0	6.8	16	8	7	Concrete lining
R4a1t4L1	396.0	6.8	16	8	1	Concrete lining
R4a2t1	792.0	13.7	33	16	7	Concrete lining
R4a2t2	792.0	13.6	33	16	7	Concrete lining
R4a2t3	792.0	27.0	65	32	7	Concrete lining



Table II-11 (9/11) List of Irrigation Canal (Seberang Perak Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
R4a2t4	792.0	4.5	11	5	6	Concrete lining
R4a2t4L1	693.0	5.7	14	7	1	Concrete lining
R4a3t1	1,254.0	22.6	54	27	11	Concrete lining
R4a3t2	957.0	18.0	43	22	8	Concrete lining
R4b1t1	858.0	16.9	41	20	9	Concrete lining
R4b1t2	858.0	33.8	81	41	17	Concrete lining
R4b1t3	858.0	31.6	76	38	15	Concrete lining
R4b1t4	858.0	29.3	70	35	15	Concrete lining
R4b1t5	858.0	29.3	70	35	15	Concrete lining
R4b1t6	858.0	15.8	38	19	8	Concrete lining
R4b3t1	759.0	12.4	30	15	18	Concrete lining
R4b3t2	792.0	29.3	70	35	15	Concrete lining
R4b3t3	759.0	22.6	54	27	11	Concrete lining
R4b3t4	792.0	29.3	70	35	15	Concrete lining
R4b3t5	759.0	24.8	60	30	13	Concrete lining
R4b3t6	792.0	29.3	70	35	15	Concrete lining
R4b3t7	759.0	29.3	70	35	15	Concrete lining
R4b3t8	792.0	31.6	76	38	15	Concrete lining
R4b3t9	759.0	29.3	70	35	15	Concrete lining
R4b3t10	792.0	30.5	73	37	18	Concrete lining
R4b3t11	825.0	29.3	70	35	6	Concrete lining
R4b4t1	495.0	37.6	90	45	1	Concrete lining
R4b4t2	594.0	12.8	31	15	1	Concrete lining
R4b4t3	990.0	60.2	144	72	1	Concrete lining
R4b4t4	825.0	32.3	78	39	1	Concrete lining
R4b4t5	891.0	29.0	70	35	1	Concrete lining
R5t1	759.0	13.6	33	16	7	Concrete lining

(9/11)

Table II-11 (10/11) List of Irrigation Canal (Seberang Perak Scheme)

(10/11)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
R5t2	759.0	24.8	60	30	7	Concrete lining
R5t3	759.0	27.0	65	32	7	Concrete lining
R5t4	759.0	31.6	76	38	8	Concrete lining
R6t1R1	759.0	13.6	33	16	7	Concrete lining
R6t1R2	759.0	20.3	49	24	10	Concrete lining
R6t	759.0	16.9	41	20	9	Concrete lining
R7t1	924.0	13.6	33	16	7	Concrete lining
R7t2	792.0	14.7	35	18	8	Concrete lining
R7t3	924.0	13.6	33	16	7	Concrete lining
R7t4	792.0	29.3	70	35	8	Concrete lining
R7t5	924.0	24.8	60	30	7	Concrete lining
R7t6	792.0	23.7	57	28	14	Concrete lining
R7t6R1	660.0	5.7	14	7	1	Concrete lining
R7t7	924.0	29.3	70	35	8	Concrete lining
R7t8	792.0	3.3	8	4	3	Concrete lining
R7t9	924.0	29.3	70	35	9	Concrete lining
R7t10	792.0	27.0	65	32	13	Concrete lining
R7t11	924.0	31.6	76	38	8	Concrete lining
R7t12	792.0	14.7	35	18	8	Concrete lining
R7t13	924.0	15.8	38	19	8	Concrete lining
R7t14	792.0	29.3	70	35	8	Concrete lining
R7t16	792.0	14.7	35	18	8	Concrete lining
R8t1	825.0	14.3	34	17	7	Concrete lining
R8t2	858.0	29.0	70	35	14	Concrete lining

Table II-11 (11/11) List of Irrigation Canal (Seberang Perak Scheme)

(11/11)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
R8t3	891.0	32.7	78	39	9	Concrete lining
R8t4	957.0	18.4	44	22	10	Concrete lining
R8t5	759.0	46.2	111	55	23	Concrete lining
R8t6	726.0	25.5	61	31	13	Concrete lining
R8t7	495.0	18.0	43	22	10	Concrete lining
Sub-total	51,282.0	1,431.1			579	
<b>Total (Right Branch)</b>	<b>119,526.0</b>	<b>4,343.5</b>			<b>1,708</b>	
<b>Total (Tertiary)</b>	<b>188,619.3</b>	<b>8,708.5</b>			<b>2,833</b>	

Table II-12 (1/6) List of Drain (Seberang Perak Scheme)

(1/6)

Name of Drainage Canal	Length (m)	Drainage Area (ha)	Discharge (lit/sec)
<b>Block A</b>			
T8L1a	570.2		
LU1a	728.6	39.2	294
LU1(D1)	1,013.7	26.5	199
LU2	3,262.9	242.7	1,820
LU2-1	475.2	82.3	617
LU3	1,267.1	103.4	776
D3as3L	1,172.1	46.5	349
LU4	1,203.8	47.3	355
D4as3L	887.0	44.2	332
LU5(D5)	696.9	52.7	395
LU5(D5)	0.0	22.9	172
D7as3L	728.6	29.0	218
LU6(DE)	728.6	25.6	192
D8as3L	728.6	44.9	337
LU7(D5a)	887.0	47.2	354
LU8-1a(D2)	950.4	97.6	732
D2s3L	950.4		
LU8-3	1,013.7	85.3	640
D2as3L	982.0	27.2	204
D5as3L	982.0	35.1	263
LU8-6	950.4	33.9	254
LU8-8	570.2	37.4	281
T10s3L	570.2	34.8	261
D9as3L	823.6	24.9	187
LU8-11	823.6	23.1	173
Total	22,967.1	1,253.7	
<b>Block B</b>			
DE-1	6,082.3		
DE1-2	1,172.1	108.9	817
DE1-1	2,249.2	221.7	1,663
DE1-4(12c)	1,013.7	94.5	709
DE1-3	1,172.1	90.6	680
DE1-5	1,457.2	168.3	1,262
DE1-7	1,172.1	94.2	707
DE1-8	1,172.1	40.7	305
Total	15,490.9	818.9	
<b>Block C</b>			
Drain	5,543.8		
LU8-2(D3)	982.0	37.6	282
LU8-4	982.0	62.3	467
LU8-5	982.0	79.6	597
LU8-7	1,108.8	106.0	795
LU8-9(D19)	950.4	91.8	689
DE2-1-1	887.0	58.8	441
DE2-2-1	887.0	92.6	695
DE2-1(D8)	1,742.3	127.3	955
DE2-2(D12)	1,552.3	115.5	866
DE2-3(D16)	1,679.0	125.1	938
DE2-4(D6)	1,679.0	133.1	998
DE2-5(D16)	1,964.1	160.4	1,203
DE2-6(D18)	1,362.2	105.3	790

Table II-12 (2/6) List of Drain (Seberang Perak Scheme)

(2/6)

Name of Drainage Canal	Length (m)	Drainage Area (ha)	Discharge (lit/sec)
DE2-7(D1)	2,312.5	94.4	708
DE2-7(D1)	1,045.4	48.0	360
DE-2	2,407.6		
Total	28,067.3	1,437.8	
<b>Block D</b>			
BUI-1(D22)	2,312.5	201.1	1,508
BUI-2(D23)	1,203.8	151.9	1,139
TIMI(D24)	1,425.5	178.6	1,340
TIMI-2(D25)	1,900.7	174.0	1,305
LU8-10(D20)	1,457.2	118.2	887
LU8-12	1,805.7	150.8	1,131
LU9	1,013.7	61.8	464
T21-1s5L	792.0	34.2	257
Total	11,911.2	1,070.6	
<b>Block E</b>			
L1cD1	792.0	19.0	143
L1cD2	792.0	34.0	255
L1cD3	792.0	29.4	221
L1cD4-1	633.6	37.0	278
L1cD4	792.0	36.1	271
L1cD5	792.0	31.5	236
L1cD6	792.0	36.2	272
L1cD7	792.0	49.6	372
L1c	3,453.0		
L1b1	3,453.0		
L1b1D1	792.0	17.2	129
L1b1D2	792.0	32.2	242
L1b1D3	792.0	28.7	215
L1b1D4	792.0	33.6	252
L1b1D5	792.0	34.0	255
L1b1D6	792.0	33.5	251
L1b1D7	792.0	35.1	263
L1b1D8	792.0	71.3	535
L1b2	3,484.7		
L1b2D1	823.6	15.6	117
L1b2D2	823.6	39.0	293
L1b2D3	823.6	35.2	264
L1b2D4	823.6	38.1	286
L1b2D5	855.3	39.6	297
L1b2D6	855.3	42.8	321
L1b2D7	855.3	39.0	293
L1b2D8	855.3	37.8	284
L1b3	3,167.9		
L1b3D1	792.0	32.1	241
L1b3D2	792.0	32.8	246
L1b3D3	792.0	35.5	266
L1b3D4	792.0	32.2	242
L1b3D5	792.0	33.3	250
L1b3D6	792.0	37.6	282

Table II-12 (3/6) List of Drain (Seberang Perak Scheme)

(3/6)

Name of Drainage Canal	Length (m)	Drainage Area (ha)	Discharge (lit/sec)
L1b3D7	792.0	29.1	218
L1b4	2,756.0		
L1b4D1	792.0	19.3	145
L1b4D2	792.0	37.7	283
L1b4D3	792.0	33.1	248
L1b4D4	792.0	38.0	285
L1b4D5	792.0	36.0	270
L1b4D6	792.0	47.5	356
L1b4D7	190.1		
L1b5	2,375.9		
L1b5D1	696.9	14.7	110
L1b5D2	696.9	16.9	127
L1b5D3	1,203.8	62.6	470
L1b5D4	696.9	20.9	157
L1b5D5	696.9	43.9	329
L1b6	2,407.6		
L1b6D1	633.6	15.0	113
L1b6D2	633.6	31.8	239
L1b6D3	633.6	27.3	205
L1b6D4	633.6	14.6	110
L1b6D5	633.6	28.8	216
L1b6D6	633.6	27.2	204
L1b7	2,439.3		
L1b7D1	285.1	10.4	78
L1b7D2	443.5	21.7	163
L1b7D3	728.6	28.4	213
L1b7D4	696.9	25.8	194
L1b7D5	633.6	41.6	312
<b>Total</b>	<b>63,832.6</b>	<b>1,721.3</b>	
<b>Block F</b>			
L1	2,534.3		
L1dD2	855.3	42.1	316
L1dD4	538.5	27.8	209
L1dD1	1,108.8	31.0	233
L1dD3	633.6	36.7	275
L2	2,534.3		
L1D1	792.0	13.9	104
L1aD1	792.0	31.8	239
L1aD2	792.0	37.0	278
L1aD3	792.0	33.8	254
L1aD4	792.0	33.5	251
L1aD5	792.0	52.7	395
L3	2,534.3		
L2D5	1,425.5	70.1	526
L2D4	696.9	53.5	401
L2D3	1,425.5	43.5	326
L2D2	982.0	20.4	153
L2D1	982.0	56.3	422

Table II-12 (4/6) List of Drain (Seberang Perak Scheme)

(4/6)

Name of Drainage Canal	Length (m)	Drainage Area (ha)	Discharge (lit/sec)
L4	2,787.7		
L3D6	570.2	18.0	135
L3D5	1,362.2	40.6	305
L3D4	855.3	35.1	263
L3D3	855.3	39.1	293
L3D2	950.4	41.0	308
L3D1	950.4	57.4	431
L5D1	728.6	17.5	131
L5D3	728.6	31.8	239
L5D5	538.5	24.2	182
L5D7	538.5	23.7	178
L5D9	538.5	47.6	357
			0
L6	2,534.3		0
L5D2	792.0	11.2	84
L5D4	792.0	28.9	217
L5D6	792.0	37.0	278
L5D8	792.0	33.5	251
L5D10	760.3	14.8	111
L5D12	760.3	27.6	207
L5D11	506.9	40.0	300
L7	3,009.5		
L6D1	728.6	14.4	108
L6D2	728.6	26.5	199
L6D3	728.6	27.0	203
L6D4	728.6	27.6	207
L6D5	728.6	42.3	317
L6D6	982.0	55.7	418
L8	2,692.7		
L7D1	728.6	10.2	77
L7D2	728.6	30.9	232
L7D3	728.6	36.6	275
L7D4	380.1	17.8	134
L7D5	380.1	17.7	133
L7D6	760.3	29.6	222
L7D7	633.6	25.9	194
L7D8	316.8	15.3	115
L1b	6,810.9		
Total	61,931.9	1,530.6	
<b>Block G</b>			
R4b2	2,375.9		
R4b1D1	823.6	48.7	365
R4b1D2	823.6	42.5	319
R4b1D3	823.6	38.1	286
R4b1D4	823.6	38.2	287
R4b1D5	823.6	35.8	269
R4b3D2	760.3	13.2	99
R4b3D4	760.3	37.1	278
R4b3D6	760.3	40.5	304

Table II-12 (5/6) List of Drain (Seberang Perak Scheme)

(5/6)

Name of Drainage Canal	Length (m)	Drinage Area (ha)	Discharge (lit/sec)
R4b3D8	760.3	36.2	272
R4b3D10	760.3	57.8	434
R4b4	1,900.7		
R4b3D1	728.6	30.6	230
R4b3D3	728.6	29.4	221
R4b3D5	728.6	31.4	236
R4b3D7	728.6	33.8	254
R4b3D9	792.0	16.4	123
R4b4D5	760.3	105.3	790
R4b4D6	887.0	65.0	488
R4b4D7	823.6	36.7	275
	0.0		
R4a3D1	633.6	67.1	503
R4a2D1	760.3	15.1	113
R4a2D2	760.3	32.9	247
R4a2D3	760.3	26.7	200
R4aD1	760.3		
R4aD2	633.6		
R4aD3	506.9		
R6D3	728.6	51.6	387
R6D2	728.6	31.8	239
R6D1	728.6	14.2	107
R5D3	728.6	27.9	209
R7D11	855.3	34.3	257
R7D9	855.3	36.0	270
R7D7	887.0	37.4	281
R5D2	887.0	105.4	791
R7D5	855.3	34.9	262
R7D14	728.6	28.4	213
R7D12	728.6	31.2	234
R7D10	728.6	13.5	101
R7D8	633.6	13.9	104
R7D6	760.3	14.8	111
R5D1	728.6	26.6	200
R7D3	792.0	13.6	102
R7D1	792.0	29.9	224
R7D4	760.3	35.1	263
R7D2	760.3	28.1	211
R8bD1	792.0	26.7	200
R8bD2	823.6	32.6	245
R8bD3	887.0	31.7	238
R8D1	792.0	14.9	112
R8D2	696.9	25.5	191
R8D3	1,013.7	58.4	438
R8bD4	1,045.4	24.1	181
Total	43,906.7	1,701.0	



Table II-12 (6/6) List of Drain (Seberang Perak Scheme)

(6/6)

Name of Drainage Canal	Length (m)	Drinage Area (ha)	Discharge (lit/sec)
<b>Block H</b>			
K5b	2,502.6	331.5	2,486
K5a	1,837.4	114.7	860
K5	2,787.7		
K10a	1,710.6	169.5	1,271
K10	855.3		
K9b	2,692.7	335.4	2,516
K9a	3,643.1	128.5	964
K9	1,583.9		
K8c	1,900.7	232.1	1,741
K8b	2,375.9	335.4	2,516
K8a	2,692.7	261.2	1,959
K8	3,864.8		
H11	4,118.2	342.9	2,572
H12	3,864.8	314.0	2,355
H13	3,643.1	295.4	2,216
H15	3,326.3	253.5	1,901
H16	3,009.5	251.0	1,883
H17	2,756.0	470.0	3,525
H18	5,005.2	431.2	3,234
H19	4,751.8	363.0	2,723
H10	4,435.0	347.8	2,609
H11	3,072.8	224.8	1,686
<b>Total</b>	<b>66,430.2</b>	<b>5,201.9</b>	
<b>Main Drain</b>			
Right Main Drain No.1	7,412.8	Block H	
Kayan High Level Drain	10,770.8	Block H	
Proposed Protection	12,988.3	Block H	
Left Main Drain L10	3,484.7	Block E	
Jalan JKR	4,435.0	Block E	
Sg. Buayan Main Drain	11,816.2	Block C	
Main Drain	11,816.2	Block A	

Table II - 13 General Features of Irrigation and Drainage (Kemasin/Semerak Scheme)

(1/2)

Description	Features	Remarks
1. Number and Name of Sub-Scheme	8 sub-schemes - Kemasin Hilir - Jelawat Rusa - Semerak Hilir - Semerak Hulu - Semerak Selatan - Semerak Barat - Sungai Yong-Gaal - Jeram-Rasau	under design review, no planting presently under design review, no planting presently under design review, no planting presently under design review, irrigated by movable pumps under design review, single cropping under design review, rainfed area
2. Number and Name of Irrigation Block - Kemasin Hilir - Jelawat Rusa	10 blocks 5 blocks (Block A, B, C, D & E) 5 blocks (Zone A0, B0, C0, B1 & C1)	
3. Irrigation Area including sub-schemes under the design review		
	6,895 ha	
- Kemasin Hilir	261 ha	
- Jelawat Rusa	1,384 ha	
- Semerak Hilir	1,000 ha	
- Semerak Hulu	174 ha	
- Semerak Selatan	1,100 ha	
- Semerak Barat	115 ha	
- Sungai Yong-Gaal	2,260 ha	
- Jeram-Rasau	601 ha	
4. Water Source - Kemasin Hilir - Jelawat Rusa	Sungai Kemasin Sungai Jelawat	Supplemented from Kada
5. Intake Method - Kemasin Hilir - Jelawat Rusa	Pumping Pumping	5 main P/S 3 main P/S and 2 booster P/S
6. Capacity of Pump Station - Kemasin Hilir Block-A Block-B Block-C Block-D Block-E - Jelawat Rusa Block-A Block-B Main P/S Block-B Booster P/S Block-C Main P/S Block-C Booster P/S	137 l/sec/each x 3 nos. 25 l/sec/each x 1 no. 25 l/sec/each x 2 nos. 25 l/sec/each x 3 nos. 125 l/sec/each x 2 nos. 425 l/sec/each x 3 nos. 347 l/sec/each x 3 nos. 192 l/sec/each x 4 nos. 397 l/sec/each x 4 nos. 146 l/sec/each x 4 nos.	
7. Unit Field Water Requirement - Kemasin Hilir - Jelawat Rusa	2.06 l/sec/ha at peak 2.06 l/sec/ha at peak	
8. Irrigation Facilities - Kemasin Hilir Tertiary canal Related structures - Jelawat Rusa Main canal Tertiary canal Related structures	  8.7 km 94 nos.  17.9 km 27.4 km 240 nos.	Concrete block lining Concrete block lining

Table II - 13 General Features of Irrigation and Drainage (Kemasin/Semerak Scheme)

(2/2)

Description	Features	Remarks
9. Drainage Facilities		
- Kemasin Hilir		
Tertiary drain	3 km	
Related structures	13 nos.	
- Jelawat Rusa		
Main drain	27 km	
Secondary drain	20 km	
Tertiary drain	8 km	
Related structures	21 nos.	
- Tidal Gate at Sg. Kemasin		
Type of gate	Electrical roller gate	
Size and number of gate	5.1 m x 4.5 m x 6 nos.	
Power source	Public electricity & Generator (100 kVA 1 no.)	
10. Fann Road	89 km	3 m width with gravel pavement

Table II-14 (1/2) List of Irrigation Canal (IADP Kemasin/Semerak Scheme)

(1/2)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
<b>Jelawat Rusa Sub-Scheme</b>						
<b>Block A0</b>						
PA	3,117.0	57.1	850	425	21	
S1A	1,110.0	60.0	145	73	10	
S2A	700.0	19.8	45	23	2	
S3A	1,413.0	34.8	75	38	5	
S4A	207.0	12.5	30	15	0	
S5A	1,522.0	52.0	100	50	8	
S6A	915.0	25.3	75	38	6	
S7A	1,620.0	51.8	105	53	6	
S8A	1,320.0	45.2	75	38	6	
T1 S1A	251.0	12.2	25	13	0	
<b>Block B0</b>						
PB	1,711.0	26.1	1,040	520	15	
S1B	866.0	21.7	40	20	2	
S2B	784.0	39.8	85	43	5	
S3B	3,297.0	80.8	195	98	12	
S4B	1,196.0	47.6	80	40	4	
<b>Block C0</b>						
PC	2,609.0	57.3	1,190	595	0	
S1C	6,298.0	94.8	305	153	14	
S2C	1,218.0	62.3	150	75	23	
S3C	193.0	12.1	30	15	8	
T1S1C	234.0	14.6	30	15	0	
T2S1C	88.0	27.0	60	30	0	
T1S2C	82.0	11.8	30	15	0	

Table II-14 (2/2) List of Irrigation Canal (IADP Kemasin/Semerak Scheme)

(2/2)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
<b>Block B1</b>						
PD	6,758.0		575	288	44	
S1D	484.0	10.8	25	13	0	
S2D	539.0	21.6	45	23	2	
T1S2D	97.0		25	13	0	
<b>Block C1</b>						
PE	3,703.0	93.8	340	170	21	
S1E	1,301.0	50.2	245	123	9	
S2E	220.0	26.2	50	25	2	
S3E	521.0	21.3	45	23	2	
T1S1E	907.0	56.7	120	60	7	
Total	45,281.0				234	
<b>Kemasin Hilir Sub-Scheme</b>						
<b>Block A</b>						
T1	3,180.0	152.0	410	205	34	
T2	1,741.0	48.0	125	63	16	
<b>Block C</b>						
T1	254.0	24.3	50	25	4	
<b>Block D</b>						
T1	1,337.0	37.0	75	38	9	
<b>Block E</b>						
T1	2,183.0	62.9	130	65	18	
Total	8,695.0				81	

Table II-15 (1/3) List of Drain (Kemasin/Semerak Scheme)

Jelawat Rusa Sub-Scheme			(1/2)
Name of Drainage Canal	Length (m)	Drinage Area (ha)	Discharge (lit/sec)
<b>General Drainage Area</b>			
DR	5,499.0	579.8	6,030.0
DS	4,890.0	940.4	9,780.0
DQ	2,156.0	1,888.5	19,640.0
DS 1R	265.0	26.9	280.0
DS 2R	154.0	12.5	130.0
DS 3R	433.0	53.8	560.0
DS 4R	1,269.0	76.9	800.0
DS 1S	119.0	9.6	100.0
DS 2S	592.0	52.9	550.0
DS 3S	2,699.0	158.7	1,650.0
DS 4S	1,690.0	124.0	1,290.0
DS 5S	2,171.0	156.7	1,630.0
DS 6S	1,395.0	82.0	853.0
DS 7S	383.0	26.0	270.0
DS 8S	966.0	0.0	
DS 1Q	579.0	76.9	800.0
DS 2Q	2,490.0	145.2	1,510.0
DS 3Q	2,612.0	144.2	1,500.0
DT1S 4R	124.0	18.3	190.0
DT2S 4R	406.0	24.0	250.0
DT1S 3S	477.0	45.2	470.0
DT 2S3S	429.0	15.4	160.0
DT 1S4S	346.0	21.2	220.0
DT 2S4S	192.0	18.3	190.0
DT 1S5S	411.0	46.2	480.0
DT 2S5S	560.0	33.7	350.0
DT 1S6S	402.0	16.3	170.0
DT 1S2Q	412.0	11.5	120.0
DT 2S2Q	168.0	12.5	130.0
DT 3S2Q	240.0	25.0	260.0
DT 1S3Q	468.0	21.2	220.0
Total	34,997.0	4,863.8	
<b>Drainage Zone AO</b>			
DM	563.0	874.8	9,098.0
DN	3,510.0	231.2	2,404.0
DP	3,803.0	795.5	8,273.0
DS 1M	471.0	40.2	418.0
DS 1N	233.0	12.7	132.0
DS 1P	631.0	31.4	327.0
DS 2P	407.0	22.6	235.0
DS 3P	234.0	14.0	146.0
DS 4P	487.0	24.3	253.0
DS 5P	219.0	21.4	223.0
DS 6P	353.0	13.4	139.0
Total	10,911.0	2,081.5	

Table II-15 (2/3) List of Drain (Kemasin/Semerak Scheme)

Jelawat Rusa Sub-Scheme

(2/2)

Name of Drainage Canal	Length (m)	Drinage Area (ha)	Discharge (lit/sec)
<b>Beria Lalang Area</b>			
G0300	4,114.0	490.4	5,100.0
G0301	1,259.0	125.0	1,300.0
G0302	1,551.0	86.5	900.0
G0303	1,170.0	125.0	1,300.0
G030101	525.0	48.1	500.0
G030301	209.0	23.8	248.0
Total	8,828.0	898.8	
<b>KEMUBU SEM DRAIN</b>			
SEM 1B	472.0	92.4	961.0
SEM 1C	269.0	19.5	203.0
SEM 1D	852.0	56.9	592.0
SEM 1E	1,234.0	53.8	560.0
Total	2,827.0	222.7	

Table II-15 (3/3) List of Drain (Kemasin/Semerak Scheme)

Kemasin Hilir Sub-Scheme			(1/1)
Name of Drainage Canal	Length (m)	Drainage Area (ha)	Discharge (lit/sec)
<b>Block A</b>			
DT1	499.0	67.5	702.0
DT2	254.0	87.2	907.0
DT3	632.0	45.5	473.0
DT4	274.0	17.8	185.0
DT5	533.0	56.6	589.0
DT6	673.0	49.2	512.0
DT7	105.0	2.4	25.0
Total	2,970.0	326.3	
<b>Block E</b>			
DT1	1,124.0	81.7	850.0
DT2	480.0	32.7	340.0
DT3	481.0	38.5	400.0
DT4	1,001.0	63.9	665.0
Total	3,086.0	216.8	



Table II - 16 General Features of Irrigation and Drainage (Besut Scheme)

Description	Features	Remarks
1. Number and Name of Sub-Scheme	2 sub-schemes - Angga Sub-Scheme - Besut Sub-Scheme	
2. Number and Name of Irrigation Block - Angga Sub-Scheme - Besut Sub-Scheme	4 blocks 1 block (Compartment 2) 3 blocks (Compartment 1, 3 & 4)	
3. Net Irrigation Area - Angga Sub-Scheme Compartment 2 - Besut Sub-Scheme Compartment 1 Compartment 3 Compartment 4	5,164 ha 1,148 ha 1,148 ha 4,016 ha 1,235 ha 1,306 ha 1,475 ha	
4. Water Source - Angga Sub-Scheme - Besut Sub-Scheme	Sungai Angga Sungai Besut	
5. Intake Method - Angga Sub-Scheme - Besut Sub-Scheme	Gravity (Angga Barrage) Gravity (Besut Barrage)	
6. Designed Intake Discharge - Angga Barrage - Besut Barrage	3.12 m <sup>3</sup> /sec 9.02 m <sup>3</sup> /sec	
7. Unit Field Water Requirement - Angga Sub-Scheme - Besut Sub-Scheme	2.33 l/sec/ha at peak 2.33 l/sec/ha at peak	
8. Irrigation Facilities - Angga Sub-Scheme Angga Barrage  Main canal Secondary canal Tertiary canal Related structures - Besut Sub-Scheme Besut Barrage  Main canal Secondary canal Tertiary canal Related structures	Barrage : Radial gate (7.6 m x 1.2 m x 2nos.) Intake gate : Sluice gate (1.3 m x 1.0 m x 2 nos.)  14.9 km 20.3 km 16.0 km 60 nos.  Barrage : Roller gate (12.32m x 2.95 m x 4 nos.) Intake gate : Slide gate (1.93m x 2.49m x 3 nos.)  32.1 km 65.7 km 100.5 km 242 nos.	no operation of intake gates due to their damages  Sediment in Angga main canal Concrete lining 13 km  Water leakage  Concrete lining 28 km Concrete lining 56 km Concrete lining
9. Drainage Facilities Main & secondary drains Tertiary drain	177 km 64 km	
10. Farm Road	241 km	

Table II-17 (1/10) List of Irrigation Canal (Besut Scheme)

(1/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
Compartment 1						
ABC	4,052.0	4,017.2	9,360	4,680		
CDE		3,453.6	8,047	4,023		
Telaga Nibong	2,064.0	527.0	1,228	614		
Gong Kulim	783.0	59.9	205	63		
	6,899.0		0	0		
Lubuk Kawah	4,531.0	408.1	951	475		
Gaung	1,680.0	66.9	156	78		
Lubuk Agu	1,126.0	155.5	362	181		
FC3/TLK	1,875.0	47.9	143	72		
FC4/TLK	1,421.0	61.9	185	57		
FC6/TLK	2,142.0	87.1	260	80		
FC1/TLA	1,650.0	52.7	154	47		
FC2/TLA	2,426.0	102.8	300	93		
Kubang Depu	3,570.0	94.2	256	79		
Pulau Panjang	3,563.0	285.4	665	332		
Pulau Ribu	1,845.0	96.8	254	78		
Tok Bugis	1,448.0	37.7	88	44		
Chenerong	1,770.0	24.1	96	29		
Gong Rengas	1,507.0	36.7	86	43		
FC1/CD	371.0	26.1	80	24		
FC2/CD	578.0	26.1	80	24		
FC3/CD	1,237.0		0	0		
Gong Lawan 'A'	2,414.0	15.0	26	35		
Gong Lawan 'B'	765.0		0	0		
Tok Nga	2,393.0	34.9	81	41		

Table II-17 (2/10) List of Irrigation Canal (Besut Scheme) (2/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
Kayu Kelat	1,459.0	43.8	1.33	41		
Gong Kulim	2,515.0	59.9	2.05	63		
Gong Guncil	60.0		0	0		
Pulau Ribu 'B'	845.0	96.8	2.54	78		
Tok Bugis	1,510.0	37.7	88	44		
FC1/TLK	1,031.0	14.4	4.3	13		
FC5/TLK	866.0	16.7	5.0	15		
FC7/TLK	510.0	25.9	5.0	18		
FC1/Gaung	248.0	20.8	3.4	10		
FC2/Gaung	866.0	12.3	2.0	16		
FC3/Gaung	248.0	30.7	5.0	15		
G. Tanah Merah	784.0		0	0		
FC1/G. Rengas	845.0	6.0	3.3	10		
FC7/Pulau Ribu	1,609.0		0	0		
FC1/Pulau Ribu 'B'	223.0	52.1	62	19		
<b>Compartment 2</b>						
Angau-Oh	8,128.0		0	0		
Padang Baloh-G9,G8 and G5	4,950.0	301.7	703	351		
R/S-E5	1,863.0	453.4	1,056	528		
TPB-G9	2,572.5	301.7	703	351		
TPB-G8	2,206.8		0	0		
TPB-G5	1,996.4		0	0		
TPB-G6	1,478.3		0	0		
T.Awek-G10	6,919.0	199.9	555	172		
T.Awek-G7	2,916.9		0	0		
RST & RRI-E5	3,025.4	486.4	1,133	567		

Table II-17 (3/10) List of Irrigation Canal (Besut Scheme)

(3/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
SS1 & ST-E4	3,505.4	417.4	973	486		
ST-Sg. Gerong-E3	3,596.9		0	0		
TT2-E2	2,186.1	14.0	33	16		
TT1-E1	3,586.6	253.8	591	296		
FC1/TPB-G9	724.4	39.6	66	20		
FC2/TPB-G8 & G9	892.2	71.1	166	83		
FC5/TPB-G5 & G6	1,196.3	23.4	39	12		
Keraki-G5	1,093.1		0	0		
Awek-G7 & G10	4,288.0	199.9	555	172		
Cabang Keraki ke 'D' G6	818.8		0	0		
Padang Lindong-G10	437.3		0	0		
RR1-E5	1,249.9	33.0	77	38		
ST-E3 & E4	3,377.0	334.7	780	390		
SS1-E4	2,993.7	82.7	193	96		
TT1-E1, E2 & E3	2,303.8		0	0		
TT2-E2	907.5	14.0	33	16		
FC2a/TPB-G9	639.4	31.9	53	16		
FC2b/TPB-G8	437.3	21.1	35	10		
FC2c/TPB-G8	424.1	18.1	30	19		
FC3/TPB-G8	281.3	39.6	66	20		
FC3a/TPB-G8	843.6	11.4	19	5		
FC6/TPB-G6	404.3	16.2	27	8		
FC6a/TPB-G6	156.8		0	0		
FC6b/TPB-G6	525.9		0	0		
FC7/TPB-G9S	418.7	427.0	71	22		
FC7a/TPB-G5	315.6	21.3	35	10		

Table II-17 (4/10) List of Irrigation Canal (Besut Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
FC4/T. Awak-G7	624.9		0	0		
FC1/RR1-E5	598.1	9.0	31	9		
FC1/RS-E5	468.2	12.0	28	14		
FC2/RS-E5	437.3	24.0	56	28		
FC2a/RS-E5	354.8		0	0		
FC1/ST-E3	650.0	51.3	120	60		
FC1/TT1-E3	1,000.0	51.3	120	60		
FC2/TT1-E3	1,150.0	51.3	100	31		
FC3/TT1-E3	1,150.0	19.8	53	16		
FC4/TT1-E1	890.0	19.5	52	16		
FC5/TT1-E2	650.0	15.0	40	21		
FC6/TT1-E1	700.0	25.5	68	21		
FC7/TT1-E1	1,588.0	40.1	107	33		
FC8/TT1-E1	518.5	17.3	46	13		
FC1/TT2-E2	726.0	14.0	25	7		
<b>Compartment 3</b>						
MN	1,130.0	1,306.2	3,043	1,522		
NO	1,425.0	1,168.5	2,723	1,361		
OPQ	1,158.0	803.6	1,872	936		
QQ2	1,982.0	349.0	814	407		
Q2C	2,028.0	140.9	328	164		
NN1	1,649.0	118.8	277	138		
NOA	1,634.0	64.3	150	75		
OO1	3,348.0	212.0	494	247		
PP1	2,815.0	229.7	535	268		

(4/10)

Table II-17 (5/10) List of Irrigation Canal (Besut Scheme)

(5/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
QQ1	1,900.0	158.7	370	185		
Q2a	1,288.0	92.1	215	107		
NOA2 (MOA)	115.0		0	0		
Q2b	1,086.0	116.0	270	135		
FC1/MN	377.0	18.9	57	17		
FC1/NN1	1,705.0	113.7	133	41		
FC2/NN1	165.0	5.1	6	2		
FC1/NOA	1,644.0		0	0		
FC1/NO	1,518.0	66.4	155	77		
FC1a/NO	386.0	25.9	22	6		
FC1b/NO	360.0	40.5	34	101		
FC2/NO	256.0	7.2	18	5		
FC1/OO1	110.0		0	0		
FC2/OO1	1,457.0		0	0		
FC2a/OO1	570.0		0	0		
FC2b/OO1	300.0		0	0		
FC4/OO1	559.0		0	0		
FC5/OO1	718.0		0	0		
FC1/OPQ	1,349.0		0	0		
FC1/PP1	213.0	49.5	110	34		
FC2/PP1	1,243.0	58.9	137	69		
FC3/PP1	960.0	37.8	84	26		
FC3a/PP1	630.0		0	0		
FC3b/PP1	390.0		0	0		

Table II-17 (6/10) List of Irrigation Canal (Besut Scheme)

(6/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
FC4/PP1	574.0	50.3	112	34		
FC5/PP1	1,060.0	33.3	74	23		
FC6/PP1	1,260.0		0	0		
FC1/QQ1	588.0	25.6	68	21		
FC2/QQ1	680.0	24.1	64	19		
Q1A	940.0	80.1	213	66		
FC1/Q1A	557.0		0	0		
FC2/Q1A	122.0		0	0		
FC4/QQ1	424.0	15.0	40	12		
FC5/QQ1	420.0		0	0		
FC1/Q2A	239.0	92.1	215	107		
Q2A1	1,086.0		0	0		
FC1/Q2A1	860.0		0	0		
FC5/TT1-E2	650.0	15.0	40	21		
FC1a/Q2A1	450.0		0	0		
FC2/Q2A1	585.0		0	0		
FC2a/Q2A1	234.0		0	0		
FC2b/Q2A1	280.0		0	0		
Q2B1	735.0	73.2	142	44		
FC1/Q2B1	253.0		0	0		
FC2/Q2B1	298.0		0	0		
Q2B2	1,121.0	42.8	83	25		
FC1/Q2B2	309.0		0	0		
Q2C1	529.0	21.6	40	12		
FC1/Q2C1	126.0	11.4	21	6		
FC2/Q2C1	971.0	11.4	21	6		

Table II-17 (7/10) List of Irrigation Canal (Besut Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
FC1/Q2C	356.0	18.9	35	10		
O2e2	1,083.0	80.6	180	90		
FC1/Q2c2	186.0	11.8	22	16		
FC2a/Q2e2	1,157.0	25.9	48	14		
FC2b/Q2c2	674.0	27.0	50	15		
FC3/Q2c2	250.0	12.9	24	7		
<b>Compartment 4</b>						
BF	2,508.0	2,782.4	6,483	3,241		
FG	1,901.0	2,662.3	6,203	3,102		
GM	1,567.0	1,994.4	4,647	2,323		
GH	1,119.0	584.4	1,362	681		
HI	250.0	504.9	1,176	588		
IJ	2,578.0	269.5	628	314		
JK	1,720.0	159.1	371	185		
KL	880.0	52.7	123	61		
MM	5,073.0	647.8	1,509	755		
TG Genal	1,902.0	120.1	280	140		
HH1	2,098.0	66.4	155	77		
III	3,618.0	218.6	509	255		
JJI	732.0	19.4	7	2		
KK1	1,302.0	44.2	103	51		
LL1	1,176.0	25.6	60	30		
LL2	1,190.0	27.2	63	32		
MIa	2,424.0	113.5	264	132		
MIb	1,148.0	91.3	213	106		



Table II-17 (8/10) List of Irrigation Canal (Besut Scheme)

(8/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
M1c	1,249.0		0	0	0	
FC2/MM1	2,185.0	37.2	87	43		
FC1/FG	2,353.0	83.5	195	97		
TA Apal	1,528.0	50.8	118	59		
FC1/TA Apal	547.0	5.5	18	5		
FC2/TA Apal	1,364.0	30.4	100	31		
FC2a/TA Apal	850.0		0	0		
FC1/TA Gerai	1,699.0	69.3	142	44		
FC1a/FG	1,050.0	61.6	90	27		
FC1b/FG	237.0	9.6	14	4		
FC1c/FG	280.0	12.3	18	5		
FC1/GH	580.0	13.1	40	12		
FC1/HH	580.0	16.8	30	9		
FC1/HH1	1,140.0	2.9	6	2		
FC2/HH1	243.0	14.3	30	9		
FC2a/HH1	442.0		0	0		
FC3/HH1	670.0	18.0	38	11		
FC1/GM	1,599.0	19.4	45	23		
FC2/GM	789.0	14.0	17	9		
FC3/GM	153.0	7.0	16	8		
FC1/U	487.0	17.2	34	10		
FD2/U	883.0	17.5	35	11		
FC2a/U	141.0		0	0		
FC3/U	244.0	7.5	15	4		
FC4/U	976.0	4.0	8	2		
FC5/U	244.0	8.0	16	5		

Table II-17 (9/10) List of Irrigation Canal (Besut Scheme)

(9/10)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	Qp (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
FC6/JJ	290.0	14.0	28	8		
FC7/JJ	740.0	22.6	45	14		
FC1/II	381.0	14.6	34	10		
FC2/II	929.0	15.1	35	10		
FC2a/II	366.0		0	0		
FC3/II	1,364.0	26.2	61	18		
FC3a/II	214.0	6.0	14	4		
FC4/II	238.0	30.0	70	21		
FC5/II	513.0	15.9	37	11		
FC6/II	580.0	23.6	55	17		
FC7/II	894.0	20.6	48	14		
FC8/II	769.0	32.2	75	23		
FC8a/II	823.0		0	0		
FC1/JK	866.0	24.8	53	16		
FC2/JK	660.0	14.9	32	9		
FC3/JK	726.0	22.5	48	14		
FC1/KK1	272.0	44.2	19	5		
FC1/LL1	200.0	25.6	13	4		
FC1/LL2	670.0		0	0		
FC2/LL2	456.0		0	0		
FC2a/LL2	145.0		0	0		
FC1/MM1	1,175.0	24.3	57	28		
FC3/MM1	740.0	34.7	81	40		
FC4/MM1	940.0	16.0	37	19		

Table II-17 (10/10) List of Irrigation Canal (Besut Scheme)

NAME OF CANAL	CANAL LENGTH (m)	COMMAND AREA (ha)	QP (lit/sec)	Qn (lit/sec)	NUMBER OF STRUCTURE (nos.)	Remarks
FC6/MM1	1,000.0		0	0	0	
FC7/MM1	750.0		0	0	0	
FC1/OO1	110.0		0	0	0	
FC8/MM1	1,250.0		0	0	0	
FC9/MM1	748.0		0	0	0	
FC10/MM1	1,175.0		0	0	0	
FC11/MM1	350.0		0	0	0	
FC12/MM1(GRP)	733.0		0	0	0	
FC13/MM1	884.0		0	0	0	
FC14/MM1(GRP)	490.0		0	0	0	
TC3/M1a	600.0		0	0	0	
TC4/M1a	300.0		0	0	0	
TC5/M1a	1,006.0		0	0	0	
TC7/M1a	800.0		0	0	0	
TC2/M1b	1,162.0		0	0	0	
TC3/M1b	1,082.0		0	0	0	
TC1/M1c	525.0		0	0	0	
TC2/M1c	250.0		0	0	0	
TC3/M1c	550.0		0	0	0	
TC4/M1c	450.0		0	0	0	
TC5/M1c	660.0		0	0	0	

(10/10)

Table II-18 List of Drain (Besut Scheme)

Name of Drainage Canal	Length (m)	Drinage Area (ha)	Discharge (lit/sec)
SG.KERADANG	8,125	167.1	1,838
DRAIN Q-Q2	2,250	269.6	2,966
DRAIN P-P1	1,750	442.5	4,868
SG.GERONG	3,125	197.2	2,169
SG.GERONG	0	713.1	7,844
DRAIN NOa	1,500	164.2	1,806
ALOR GERONG	500	173.9	1,913
ALOR APAL	1,250	387.4	4,261
PARIT KUBANG IKAN	3,375		
DRAIN Q2c	1,125	130.1	1,431
KUBANG IKAN	1,050	114.5	1,260
DRAIN Q2d	1,450	162.0	1,782
DRAIN A	4,700		
DRAIN Q-Q1	1,250	162.9	1,792
DRAIN Q-Q1	1,050	166.3	1,829
DRAIN C	750	165.8	1,824
NON NAME	2,750	316.8	3,485
DRAIN B	1,375	320.7	3,528
SG.KENAK	11,000		
DRAIN D	2,375	1,554.3	17,097
DRAIN E	3,875	493.2	5,425
SG.PANGGONG KAYO KELA	4,250	1,313.6	14,450
NON NAME	5,000	1,540.7	16,948
SG.JERTEH	4,625		
SG.TANDOK	2,500	1,368.5	15,054
NON NAME	2,250	419.1	4,610
NON NAME	4,750	438.0	4,818
SG.BESUT	0	991.9	10,911
A.JAWEK	1,750	391.3	4,304
<b>TOTAL</b>	<b>79,750</b>	<b>12,564.7</b>	

Note : The above list presents major drains.

Table II-19 Rehabilitation and Improvement Plan of System Infrastructures (Master Plan)

(1/2)

Name of Scheme	Rehabilitation/Improvement Plan
IADP Pulau Pinang	<p><i>I. Improvement of Irrigation and Drainage Facilities</i></p> <ul style="list-style-type: none"> <li>- Concrete lining including removal of sediment (main canal 35 km, secondary canal 79 km)</li> <li>- Construction of regulating structure (main canal 6 nos., secondary canal 12 nos.)</li> <li>- Repair of damaged structures (2 nos.)</li> <li>- Desilting of drains (tertiary drains 40 km)</li> <li>- Pavement of farm road (asphalt pavement 11 km)</li> <li>- Widening of farm road along tertiary canals (100 km)</li> </ul> <p><i>II Provision of Water Management Facilities</i></p> <ul style="list-style-type: none"> <li>- Installation of water level stations at main pump stations, intake and major diversion point on main and secondary canals</li> <li>- Installation of rainfall stations (4 locations)</li> <li>- Provision of remote control facilities for major gates and pumps</li> </ul>
IADP Kerian	<p><i>I. Improvement of Irrigation and Drainage Facilities</i></p> <ul style="list-style-type: none"> <li>- Construction of new drains (17 km)</li> <li>- Desilting of existing drains (570 km)</li> <li>- Construction of bunds (150 km)</li> <li>- Construction and repair of drainage gates (2 locations)</li> <li>- Construction of drainage control structures</li> <li>- Concrete lining including removal of sediment (main canal 62 km, secondary canal 40 km)</li> <li>- Construction of regulating structure (main canal 7 nos., secondary canal 8 nos.)</li> <li>- Repair of damaged structures (16 nos.)</li> <li>- Pavement of farm road (asphalt pavement 40 km)</li> <li>- Widening of farm road along tertiary canals (100 km)</li> </ul> <p><i>II Provision of Water Management Facilities</i></p> <ul style="list-style-type: none"> <li>- Installation of water level stations at Bukit Merah reservoir intake, Bogak pump station and major diversion point on main and secondary canals</li> <li>- Installation of rainfall stations (4 locations)</li> <li>- Provision of remote control facilities for major gates and pumps</li> </ul>
IADP Sungai Manik	<p><i>I. Improvement of Irrigation and Drainage Facilities</i></p> <ul style="list-style-type: none"> <li>- Construction of settling basin at downstream of intake structure</li> <li>- Concrete lining (secondary canal 51 km, tertiary canal 135 km)</li> <li>- Construction of regulating structure (secondary canal 2 nos.)</li> <li>- Construction of road crossing structures (4 nos.)</li> <li>- Repair of damaged structures (54 nos.)</li> <li>- Desilting of drains (main drain 12 km)</li> <li>- Pavement of farm road (asphalt pavement 13 km)</li> <li>- Widening of farm road along tertiary canals (42 km)</li> </ul> <p><i>II Provision of Water Management Facilities</i></p> <ul style="list-style-type: none"> <li>- Installation of water level stations at intake and major diversion point on main and secondary canals</li> <li>- Installation of rainfall stations (2 locations)</li> <li>- Provision of remote control facilities for major gates</li> </ul>
IADP Seberang Perak	<p><i>I. Improvement of Irrigation and Drainage Facilities</i></p> <ul style="list-style-type: none"> <li>- Removal of sediment in canal (46 km)</li> <li>- Concrete lining (secondary canal 12 km, tertiary canal 69 km)</li> <li>- Construction of regulating structure (5 nos.)</li> <li>- Construction of spillway on main canal</li> <li>- Repair of damaged structures (53 nos.)</li> <li>- Desilting of drains (main drain 13 km)</li> <li>- Construction of farm road (6 km)</li> <li>- Widening of farm road along tertiary canals (35 km)</li> </ul> <p><i>II Provision of Water Management Facilities</i></p> <ul style="list-style-type: none"> <li>- Installation of water level stations at intake and major diversion point on main and secondary canals</li> <li>- Installation of rainfall stations (2 locations)</li> <li>- Provision of remote control facilities for major gates including motorization of intake and bifurcation gates</li> </ul>

Table II-19 Rehabilitation and Improvement Plan of System Infrastructures (Master Plan)

(2/2)

Name of Scheme	Rehabilitation/Improvement Plan
IADP Kemasia/Semerak	<p><i>I. Improvement of Irrigation and Drainage Facilities</i></p> <ul style="list-style-type: none"> <li>- Repair of damaged structures (9 nos.)</li> <li>- Desilting of drains (main drain 20 km)</li> <li>- Widening of farm road along tertiary canals (36 km)</li> </ul> <p><i>II Provision of Water Management Facilities</i></p> <ul style="list-style-type: none"> <li>- Installation of water level stations at major pump stations</li> <li>- Installation of rainfall stations (2 locations)</li> </ul>
IADP Besut	<p><i>I. Improvement of Irrigation and Drainage Facilities</i></p> <ul style="list-style-type: none"> <li>- Replacement of Angga Barrage</li> <li>- Repair of Besut Barrage gates (4 nos.)</li> <li>- Concrete lining (main &amp; secondary canals 26 km, tertiary canal 3 km)</li> <li>- Heightening of existing lining canal (12 km)</li> <li>- Construction of regulating structure (6 nos.)</li> <li>- Repair of damaged structures (74 nos.)</li> <li>- Desilting of drains (main drain 16 km)</li> <li>- Construction of farm road (6 km)</li> <li>- Construction of drainage control structures (15 nos.)</li> <li>- Pavement of farm road (asphalt pavement 8 km)</li> <li>- Widening of farm road along tertiary canals (27 km)</li> </ul> <p><i>II Provision of Water Management Facilities</i></p> <ul style="list-style-type: none"> <li>- Installation of water level stations at Angga &amp; Besut Barrage and major diversion point on main and secondary canals</li> <li>- Installation of rainfall stations (3 locations)</li> <li>- Provision of remote control facilities for major gates</li> </ul>

Table II-20 Rehabilitation and Improvement Plan of System Infrastructures (Kerian Scheme)

	Work Plan	Remarks
1. Irrigation Canal	Main canal Terusan Besar	10 km from diversion point of main canal Terusan Alor
Concrete lining	Main canal other than above	52 km
	Secondary canals	
	TA 564 KNI	3.7 km
	Panchor 2	3.6 km
	Kolam 1167 AB	2.2 km
	TA 74	8.7 km
	TA 178	6.7 km
	TA 136	2.0 km
	TA 206	3.6 km
	218 K1	5.9 km
	Air Hitam	3.5 km
2. Drainage Facilities	Provision of additional drainage control gate at mouse of Sg. Bharu	
Repair of drainage control gate at mouse of Sg. Burong	Compartment D - F	110 km
Desilting of drains	Compartment A - C	472 km
Construction of additional outlet pipe	Compartment A - C	800 m
Construction of control structure	Compartment A - C	120 nos.
Construction of bund : 153 km	Compartment A - C	153 km
Construction of new drain	Compartment A - C	17 km
Provision of drainage pump	Compartment A - C	10 nos.
3. Farm road		
Asphalt pavement	along Terusan Besar, Senasing, Alor	40 km
Widening of tertiary roads	Pongus, Tg. Piandang, T. Serong	100 km
4. Related structures		
Provision of check structures	on main canal	7 nos. Key monitoring point
Replacement of CHO & offtake gate	on secondary canals	8 nos. Second monitoring point
Change gate spindle		14 nos.
		2 nos.

Table II-21 Required Works for Control and Monitoring Points (Kerian Scheme)

Point	Location	Required Works				Remarks
		Remote Control Gate Size / Number of Pump	Water Level Gauge nos.	Lining m		
				Primary canal	Branched canal	
Key Control point						
KC1	Intake at Bukit Merah Reservoir	1.83 m x 2.13 m x 6 nos.	2	15		
KC2	Offtake point to Terusan Alor Pongsu	1.50m x 2.00m x 8 nos.	2		15	CHO, proposed lining portion
KC3	Boyak Pump Station	4 nos	2	15		
KC4	Offtake point to Terusan Tg. Piandang	3.40 m x 3.20 m x 2 nos.	2	30	15	
KC5	Offtake point to TA. 218	1.65 m x 2.60 m x 6 nos.	2	30	15	CHO
Second Control Point						
SC1	Offtake point to TA. Kalam 1167	1.20 m x 2.00 m x 3 nos.	2	30	15	
SC2	Offtake point to TA. 74	1.65 m x 2.60 m x 6 nos.	2	30	15	CHO
SC3	Offtake point to TA. 136	1.65 m x 2.60 m x 6 nos.	2	30	15	CHO
Key Monitoring Point						
KM1	Lower reach of offtake for TA. Haji Ali on Terusan Besar		1			proposed lining portion
KM2	Lower reach of offtake for TA. 804 KI, KN on Terusan Besar		1			proposed lining portion
KM3	Lower reach of offtake for TA. Sg. Dungan 1088 on Terusan Besar		1	30		
KM4	Lower reach of offtake for TA. 403 on Terusan T. Serong		1	30		
KM5	Lower reach of offtake for TA. 195 on Terusan Semising		1	30		
KM6	Upper reach of offtake for TA. 1B on Terusan Semising		1	30		
KM7	Lower reach of offtake for TA. Alor Pongsu 3 on Terusan Alor Pongsu		1	30		
Second Monitoring Point						
SM1	Beginning of TA. 315		1	30		
SM2	Beginning of TA. 1B		1	30		
SM3	Beginning of TA. 539 KI		1	30		
SM4	Beginning of TA. Alor Pongsu 3		1	30		
SM5	Beginning of TA. Panchor 2/1		1	30		
SM6	Beginning of TA. 310 A		1	30		
SM7	Beginning of TA. 303		1	30		
SM8	Beginning of TA Air Hitam		1	30		
Third Monitoring Point						
TM1	Beginning of TA Tubok Panchor-A		1	30		



Table II-21 Required Works for Control and Monitoring Points (Kerian Scheme)

Point	Location	Required Works				Remarks
		Remote Control Gate Size / Number of Pump	Water Level Gauge nos.	Lining m		
				Primary canal	Branched canal	
TM2	Beginning of TA Ali Kalang 2		1	30		
TM3	Beginning of TA Hj. Aman 2/1		1	30		
TM4	Beginning of TA Haji Ali		1	30		
TM5	Lower reach of offtake for TA. Ismail 2/1		1	30		
TM6	Lower reach of offtake for TA. 1088 KN-B		1	30		
TM7	Beginning of TA 16		1	30		
TM8	Beginning of TA 206		1	30		
TM9	Beginning of TA Sg. Tongkan		1	30		
TM10	Beginning of Sg. Udang		1	30		
TM11	Beginning of TA 375		1	30		
TM12	Beginning of TA 339		1	30		
TM13	Beginning of TA 564 Kn		1	30		

Table II-22 Rehabilitation and Improvement Plan of System Infrastructures (Besut Scheme)

(1/2)

Work Plan	Remarks
1. Replacement of Angga Barrage and Intake structure including construction of control house	
2. Replacement of Besut Barrage gates	4 nos.
3. Irrigation Canal	
Concrete lining	
Besut main canal Point B - E	2.6 km
TA. Telaga Nibong	1.8 km from BP
Besut secondary canals	
TA. Lubok Kawah	3.8 km from BP
TA. Pulau Panjang	3.1 km from BP
TA. Tok Bugis	2.5 km from BP
Besut tertiary canals	2.5 km
Angga secondary canals	
TA. Padang Baloh	4.0 km from BP
TA. Awek	3.5 km from BP
Angga tertiary canals	0.5 km
Heightening of lining	
Besut main canal Point E - H	4.8 km
Besut main canal Point G-M-N-O	4.0 km
Besut secondary canals	
TA. Pulau Ribu	2.8 km from BP
Heightening of existing bank and placing of lining newly	
Angga main canal (Point 3.7 km to Point R)	4.6 km
4. Drainage facilities	
Desilting of drains	16 km
Provision of drainage control	15 nos.

Table II-22 Rehabilitation and Improvement Plan of System Infrastructures (Besut Scheme)

(2/2)

Work Plan	Remarks
5. Farm road	
Asphalt pavement	
along Besut main canal	5.5 km
along Angga main canal	2.5 km
Widening and laterite pavement	
along Besut tertiary canals	14 km
along Angga tertiary canals	13 km
6. Related structures	
Provision of check structures	
on Besut main canal	3 nos. Monitoring points & downstream of point C
on Angga main canal	2 nos. Monitoring points
on Besut secondary canals	1 no. Monitoring points
Replacement of CHO & offtake gate on Besut main canal	
on Besut secondary canals	34 nos.
on Angga main canal	18 nos.
on Angga secondary canals	2 nos.
on Besut main canal	5 nos.
Replacement of check gate and control drop gate	
on Besut main canal	10 nos.
on Besut secondary canals	4 nos.
on Angga main canal	1 no.

Table II-23 Required Works for Control and Monitoring Points (Besut Scheme)

Point	Location	Required Works			Remarks
		Remote Control Gate Size / Number of Pump	Water Level Gauge nos.	Lining m Primary canal Branched canal	
Key Control point					
KC1	Intake at Besut Barrage	1.93 m x 2.49 m x 3 nos.	2		proposed lining portion
KC2	Offtake point G on Besut Main Canal	1.60 m x 2.00 m x 1 no.	2		installed
KC3	Intake at Anyga Barrage	1.32 m x 1.52 m x 2 nos.	2		including control room
Second Control Point					
SC1	Offtake point E on Besut Main Canal	1.60 m x 2.00 m x 1 no.	2		proposed lining portion
SC2	Offtake point M on Besut Main Canal	1.20 m x 1.70 m x 1 no.	2		"
Key Monitoring Point					
KM1	Lower reach of offtake point E on Besut Main canal		1		proposed lining portion
KM2	Lower reach of offtake point M on Besut Main canal		1		"
KM3	Lower reach of offtake point O on Besut Main canal		1		"
KM4	Upper reach of offtake point R on Anyga Main Canal		1		"
Second Monitoring Point					
SM1	Beginning of TA, Lubuk Lawah (point B on Besut Main Canal)		1		proposed lining portion
SM2	Upper reach of offtake point E on Besut Mian Canal		1		"
SM3	Lower reach of offtake point N on Besut Mian Canal		1		"
SM4	Lower reach of offtake point H on Besut Mian Canal		1		"
SM5	Lower reach of offtake point R on Anyga Mian Canal		1		"
Third Monitoring Point					
TM1	Beginning of TA, Lubuk Agu		1		proposed lining portion
TM2	Beginning of TA, Gong Kulim		1		"
TM3	Beginning of TA, Kubang Depu		1		"
TM4	Beginning of TA, Lulau Ribu		1		"
TM5	Beginning of TA, TG, Gelai		1		"
TM6	Beginning of TA, FCI/PG		1		"
TM7	Beginning of TA, HH1		1		"
TM8	Beginning of TA, II		1		"
TM9	Beginning of TA, M1a		1		"

Table II-23 Required Works for Control and Monitoring Points (Besut Scheme)

Point	Location	Required Works				Remarks
		Remote Control Gate Size / Number of Pump	Water Level Gauge nos.	Lining m		
				Primary canal	Branched canal	
TM10	Beginning of TA. M1b		1			proposed lining portion
TM11	Beginning of TA. NN1		1			"
TM12	Beginning of TA. PP1		1			"
TM13	Beginning of TA. QQ1		1			"
TM14	Beginning of TA. Q2a		1			"
TM15	Beginning of TA. Q2b		1			"
TM16	Beginning of TA. Padang Baloh		1			"
TM17	Beginning of TA. Awak		1			"
TM18	Beginning of TA. RR1		1			"
TM19	Beginning of TA. SS1		1			"

Table II-24 Recycling Pumps in Besut Scheme

LOCATION	COMMAND AREA (ha)	NUMBER OF PUMP (nos.)	TOTAL CAPACITY (m <sup>3</sup> /sec)	REMARKS
Kuala Kenak	48	1	0.28	
Gong Jelutong	30	2	0.14	
Pangkal Q2C	12	1	0.06	
Alor Bakong	30	2	0.31	
Gerong	61	2	0.28	
Alor Belusu	30	1	0.14	

Table II-25 Rehabilitation and Improvement Plan of System Infrastructures (Pulau Pinang Scheme)

Work Plan	Remarks
1. Irrigation Canal	
Concrete lining	8 km including removal of sediment
Sg. Muda main canal	8 km
Sg. Muda main canal	8 km
Sg. Kulim main canal	7 km
Pinang Tunggal main canal	14 km
Sg. Jarak main canal	6 km
Sg. Muda secondary canals	68 km
Sg. Kulim secondary canals	8 km
Sg. Jarak secondary canals	3 km
2. Drainage facilities	
Desilting of tertiary drains	40 km
3. Farm road	
Asphalt pavement	along Sg. Muda main canal 8 km
Widening of tertiary farm road	along upper reach of P. Tunggal main canal 3 km 100 km
4. Related structures	Key & secondary monitoring points
Provision of check structures	on Sg. Muda main canal 2 nos. Key monitoring point
	on P. Tunggal main canal 1 no. Key monitoring point
	on Sg. Kulim main canal 1 no. Key monitoring point
	on Sg. Muda secondary canals 8 nos. Second monitoring point
Replacement of CHO gate	on Sg. Jarak main & secondary 6 nos. 2 nos.

Table II-26 Required Works for Control and Monitoring Points (Pulau Pinang Scheme)

Point	Location	Required Works			Remarks
		Remote Control Gate Size / Number of Pump	Water Level Gauge nos.	Lining m Primary canal Branched canal	
<i>SE Muda Sub-Scheme</i>					
Key Control point					
KC1	Rumbong Lima Pump Station	8 nos.	2		proposed lining portion
KC2	Offtake point to TA. B	2.00 m x 2.00 m x 4 nos.	2	15	CHO, proposed lining portion
KC3	Offtake point to TA. C	2.00 m x 2.00 m x 4 nos.	2	15	CHO, proposed lining portion
KC4	Offtake point to TA. G	1.25 m x 1.70 m x 2 nos.	2	15	proposed lining portion
KC5	Offtake point to TA. H	1.00 m x 0.60 m x 2 nos.	2	15	CHO, proposed lining portion
<i>Second Control Point</i>					
SC1	Offtake point to TA. CA	1.70 m x 1.70 m x 4 nos.	2	15	CHO, proposed lining portion
SC2	Offtake point to TA. D	1.70 m x 1.70 m x 4 nos.	2	15	CHO, proposed lining portion
SC3	Offtake point to TA. E	2.00 m x 2.00 m x 4 nos.	2	15	CHO, proposed lining portion
<i>Key Monitoring Point</i>					
KM1	Lower reach of offtake point TA. A on Main canal		1		proposed lining portion
KM2	Lower reach of offtake point TA. F on Main canal		1		
<i>Second Monitoring Point</i>					
SM1	Lower reach of offtake for TA. A 9L on TA. A		1	30	
SM2	Beginning of TA. A3		1	30	
SM3	Beginning of TA. B2		1	30	
SM4	Lower reach of offtake for TA. C 7L on TA. C		1	30	
SM5	Beginning of TA. F1		1	30	
SM6	Lower reach of offtake for TA. F 8R on TA. F		1	30	
SM7	Lower reach of offtake for TA. H 2R on TA. H		1	30	
SM8	Lower reach of offtake for TA. H3 3R on TA. H3		1	30	
<i>Third Monitoring Point</i>					
TM1	Beginning of TA. A1		1	30	
TM2	Lower reach of offtake for TA. A3-4R on TA. A3		1	30	
TM3	Beginning of TA. B1		1	30	
TM4	Beginning of TA. C1		1	30	



Table II-26 Required Works for Control and Monitoring Points (Pulau Pinang Scheme)

Point	Location	Remote Control Gate Size / Number of Pump	Required Works		Remarks
			Water Level Gauge nos.	Lining m Primary canal Branched canal	
TM5	Beginning of TA, C2		1	30	
TM6	Beginning of TA, C4		1	30	
TM7	Lower reach of offtake for TA, F1 on TA, F		1	30	
TM8	Beginning of TA, F3		1	30	
TM9	Beginning of TA, F1A		1	30	
TM10	Beginning of TA, H1		1	30	
TM11	Beginning of TA, H2		1	30	
<i>Pinang Tunggal Sub-Scheme</i>					
Key Control Point					
KC6	Pinang Tunggal Pump Station	3 nos.	2	15	
Key Monitoring Point					
KM3	Beginning of TA, PS		1	30	
Third Monitoring Point					
TM12	Lower reach of offtake for TA, PS-2R on TA, PS		1	30	
<i>Sungai Kulim Sub-Scheme</i>					
Key Control Point					
KC7	Kulim Headworks	1.00 m x 2.00 m x 4 nos.	2		proposed lining portion
Second Control Point					
SC4	Offtake point of TA, 1		2	15	proposed lining portion
Key Monitoring Point					
KM8	Lower reach of offtake for TA, 2 on Main Canal		1		proposed lining portion
Third Monitoring Point					
TM13	Upper reach of offtake for 1-2R on TA, 1		1	30	

Table II-26 Required Works for Control and Monitoring Points (Pulau Pinang Scheme)

Point	Location	Required Works				Remarks
		Remote Control Gate Size / Number of Pump	Water Level Gauge nos.	Lining m		
				Primary canal	Branched canal	
<i>Sungai Jarak Sub-Scheme</i>						
Key Monitoring Point						
KM4	Sg. Jarak Headworks		2	1.5		
KM5	Padang Cempedak Pump Station		2	1.5		
KM6	Sg. Kreh Headworks		2	1.5		
KM7	Kreh Pump Station		2	1.5		

## ***FIGURES***

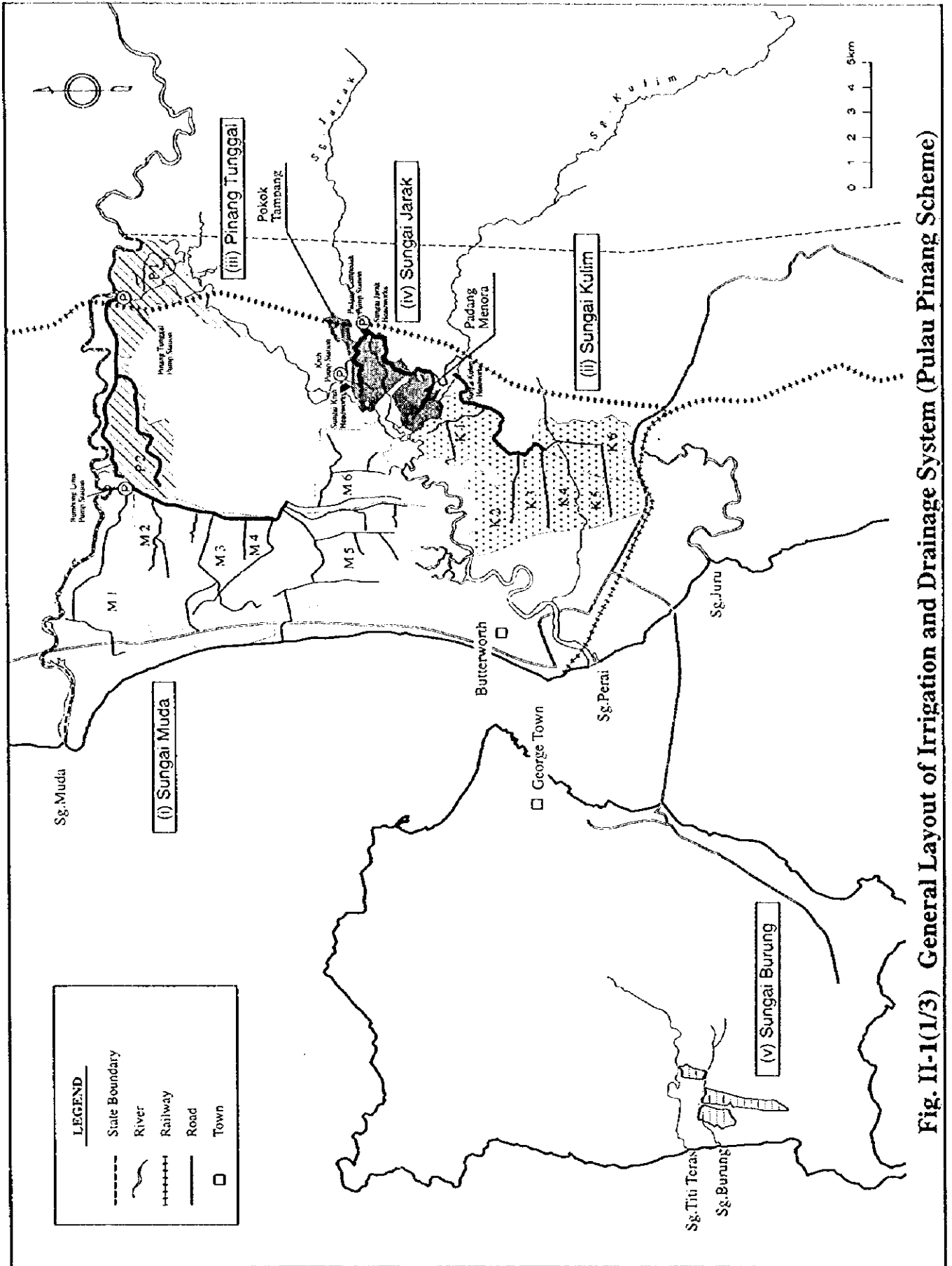
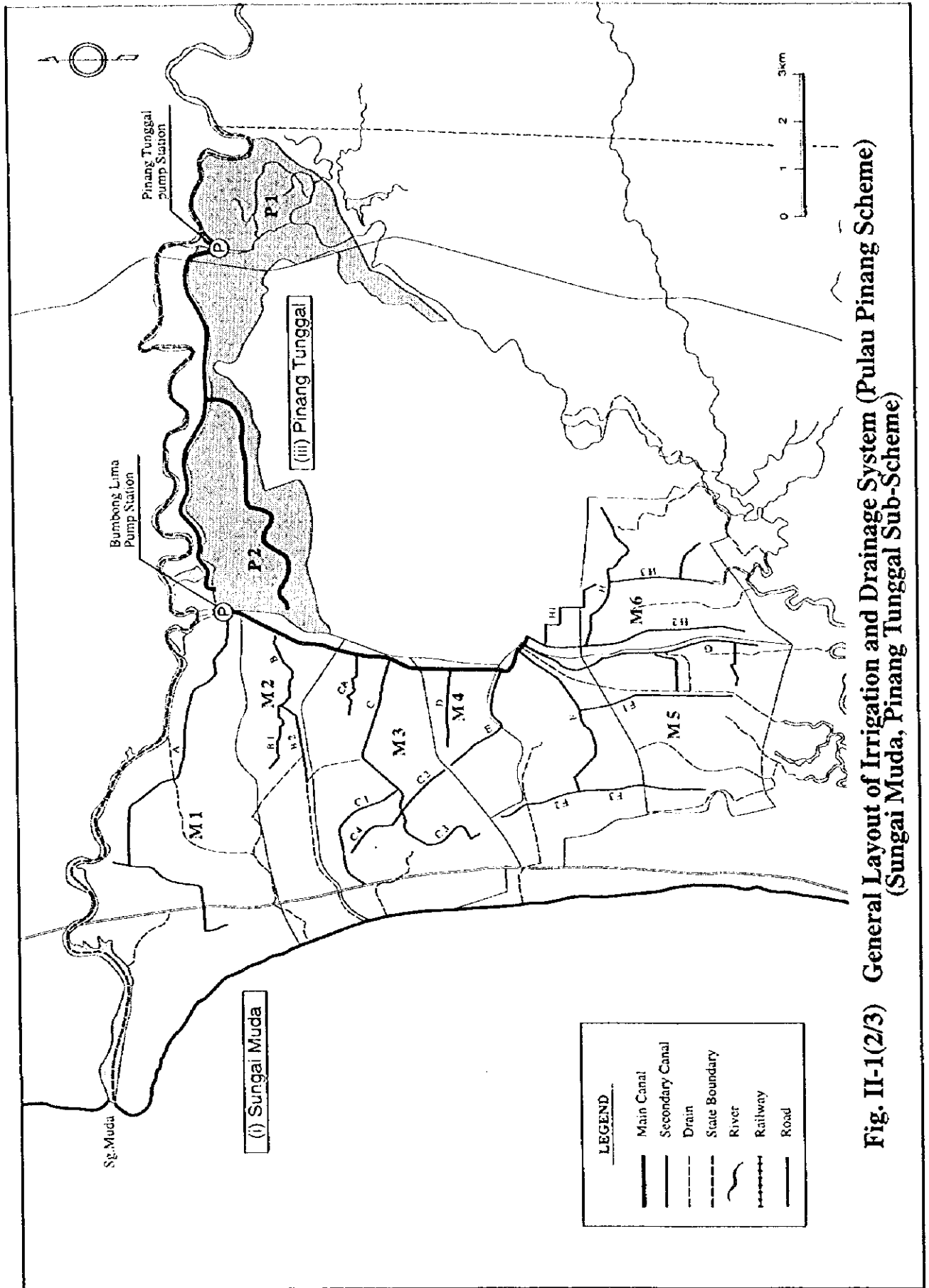
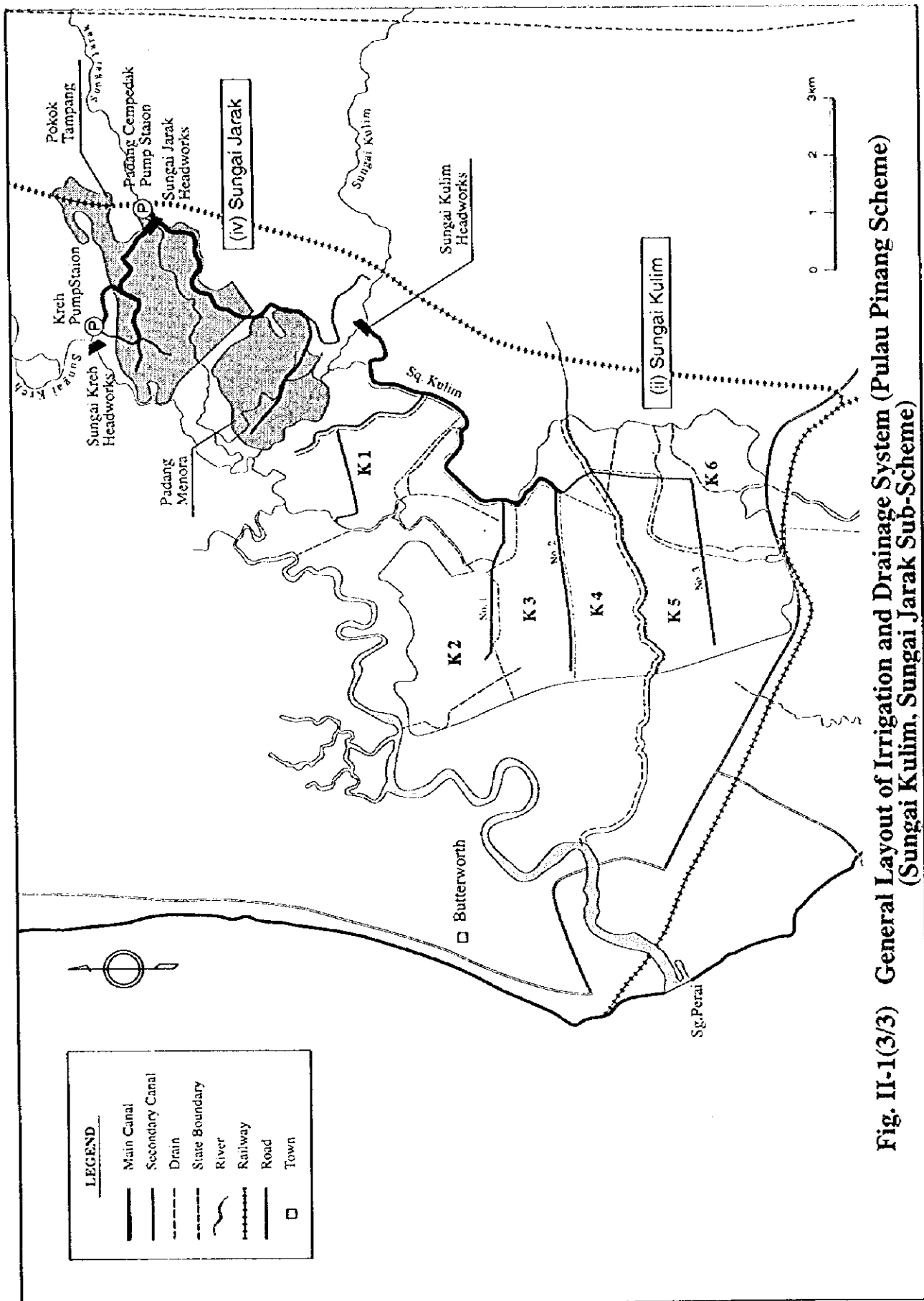


Fig. II-1(1/3) General Layout of Irrigation and Drainage System (Pulau Pinang Scheme)



**Fig. II-1(2/3) General Layout of Irrigation and Drainage System (Pulau Pinang Scheme)**  
**(Sungai Muda, Pinang Tunggal Sub-Scheme)**



**Fig. II-1(3/3) General Layout of Irrigation and Drainage System (Pulau Pinang Scheme)  
(Sungai Kulim, Sungai Jarak Sub-Scheme)**

Fig II-2 (1/12)

Irrigation Water Distribution Diagram

IADP Pulau Pinang/Muda Irrigation Scheme Kawasan M1

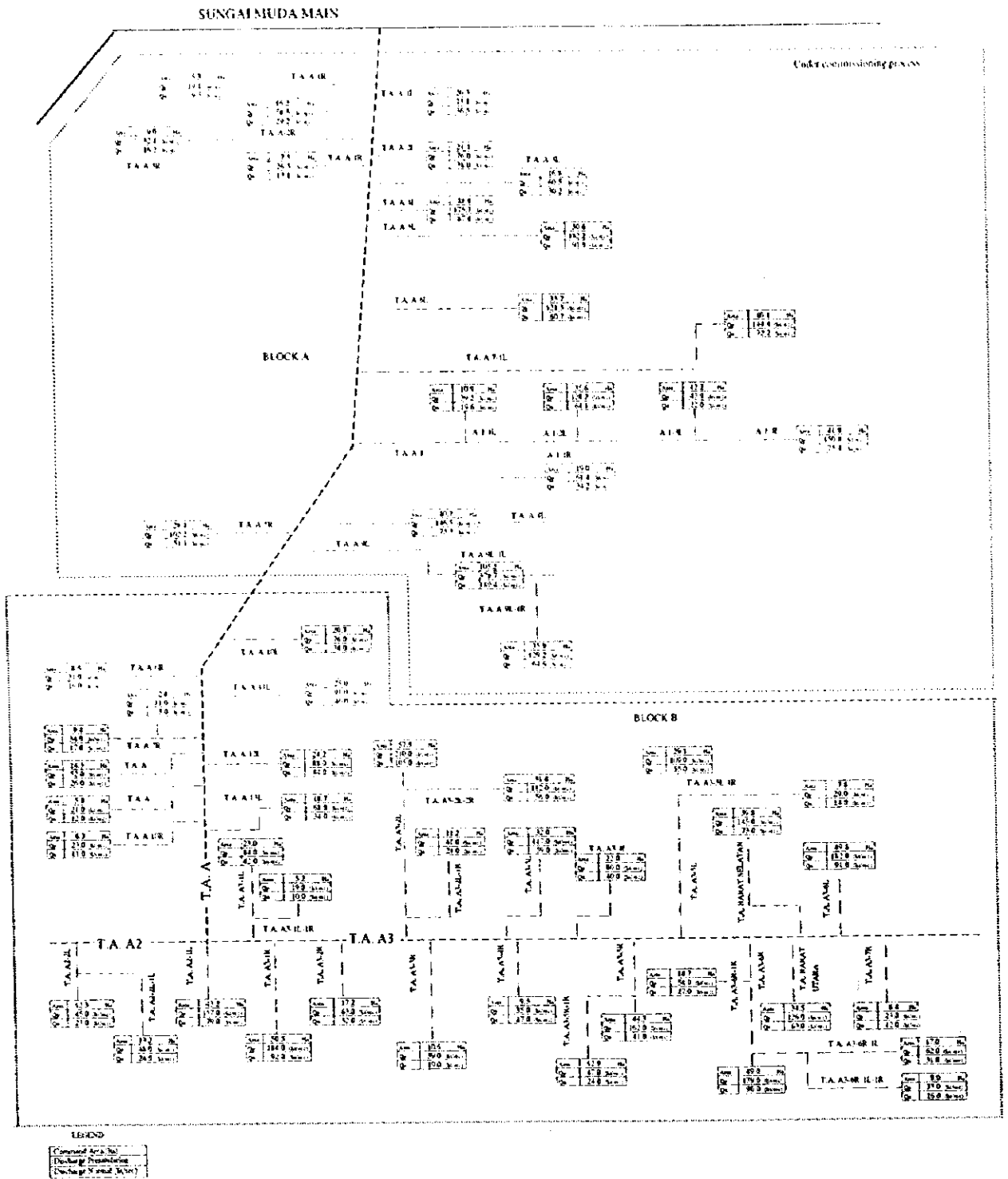


Fig. II-2 (2/12) Irrigation Water Distribution Diagram  
IADP Pulau Pinang /Muda Irrigation Scheme Kawasan M2

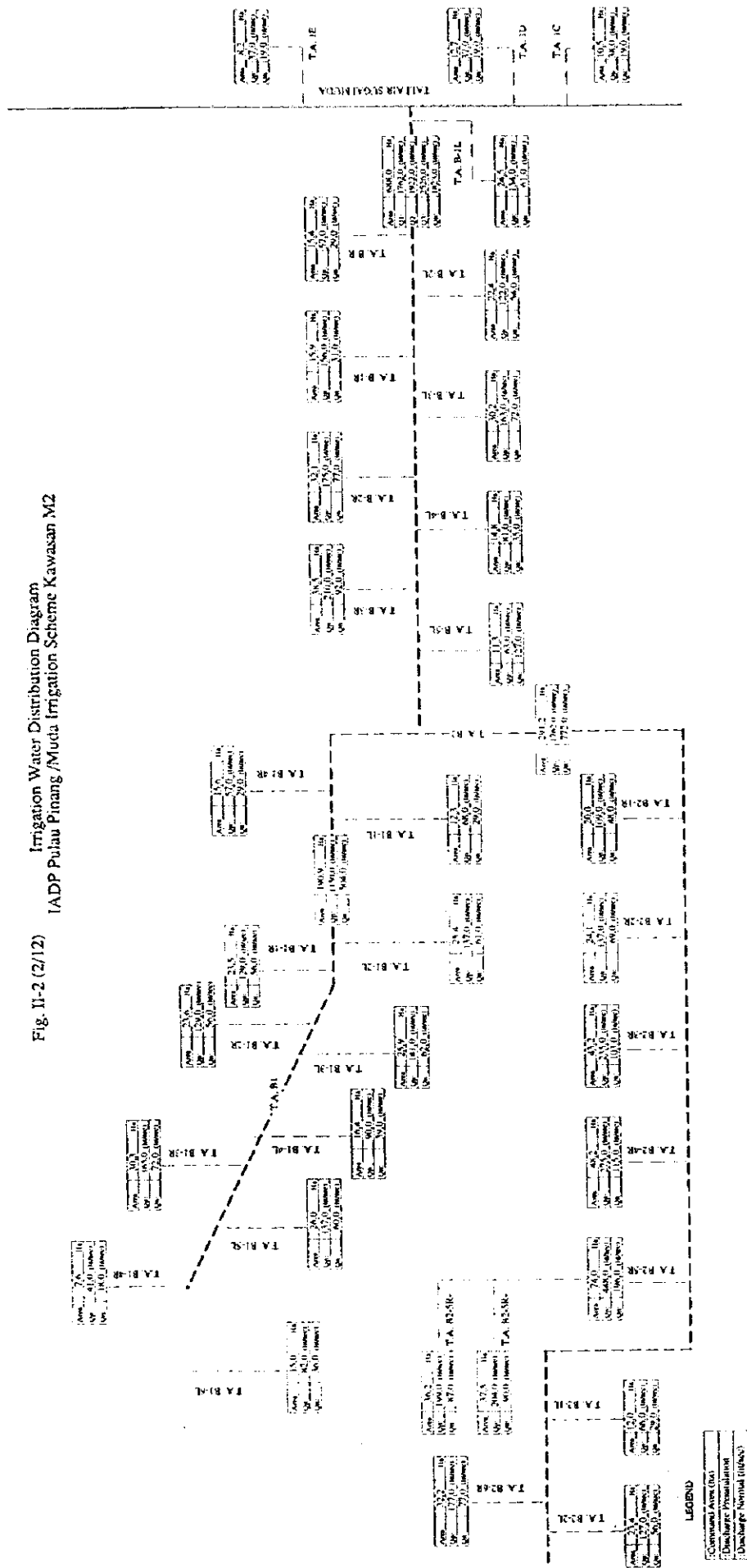


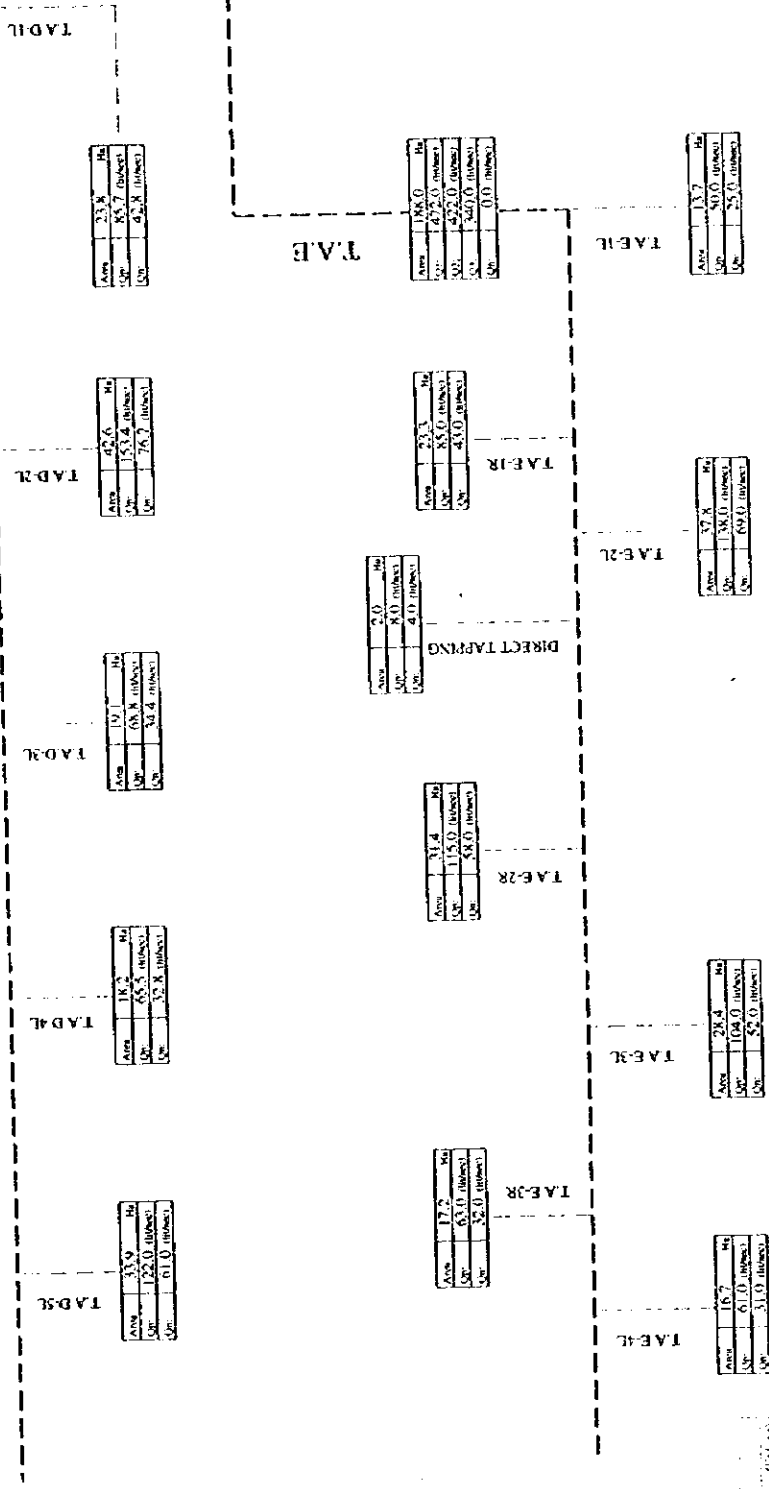




Fig. II-2 (4/12)

Irrigation Water Distribution Diagram  
IADP Pulau Pinang / Muda Irrigation Scheme Kawasan M4

T.A.D

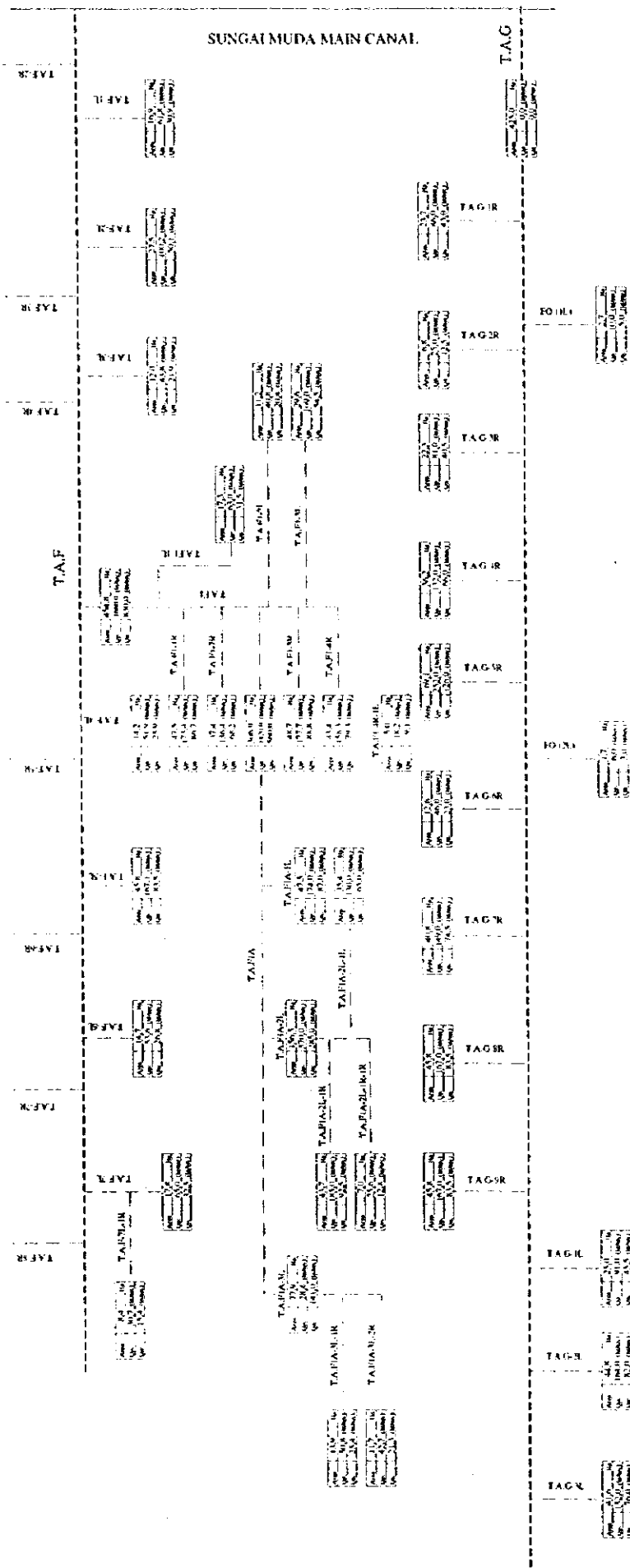


LEGEND  
 [Solid Line] Command Area (ha)  
 [Dashed Line] Discharge Prescription (lit/sec)  
 [Dotted Line] Discharge Normal (lit/sec)

SUNGAI MUDA MAIN CANAL



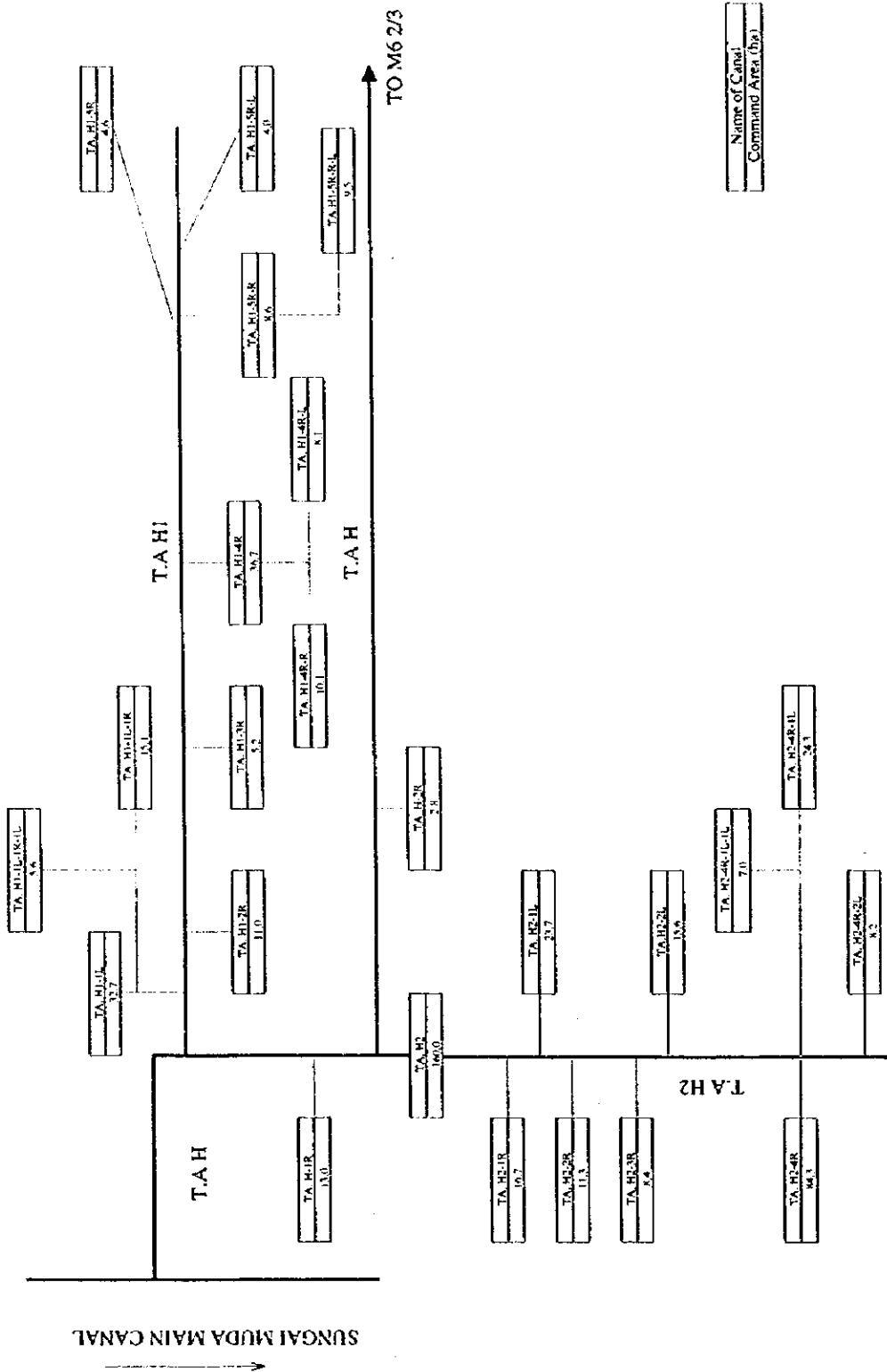
Fig. II-2 (6/12) Irrigation Water Distribution Diagram  
 IADP Pulau Pinang /Muda Irrigation Scheme Kawasan MS Block C&D



LEGEND  
 1 Command Area Area  
 2 Discharge Distribution  
 3 Discharge Normal (100%)

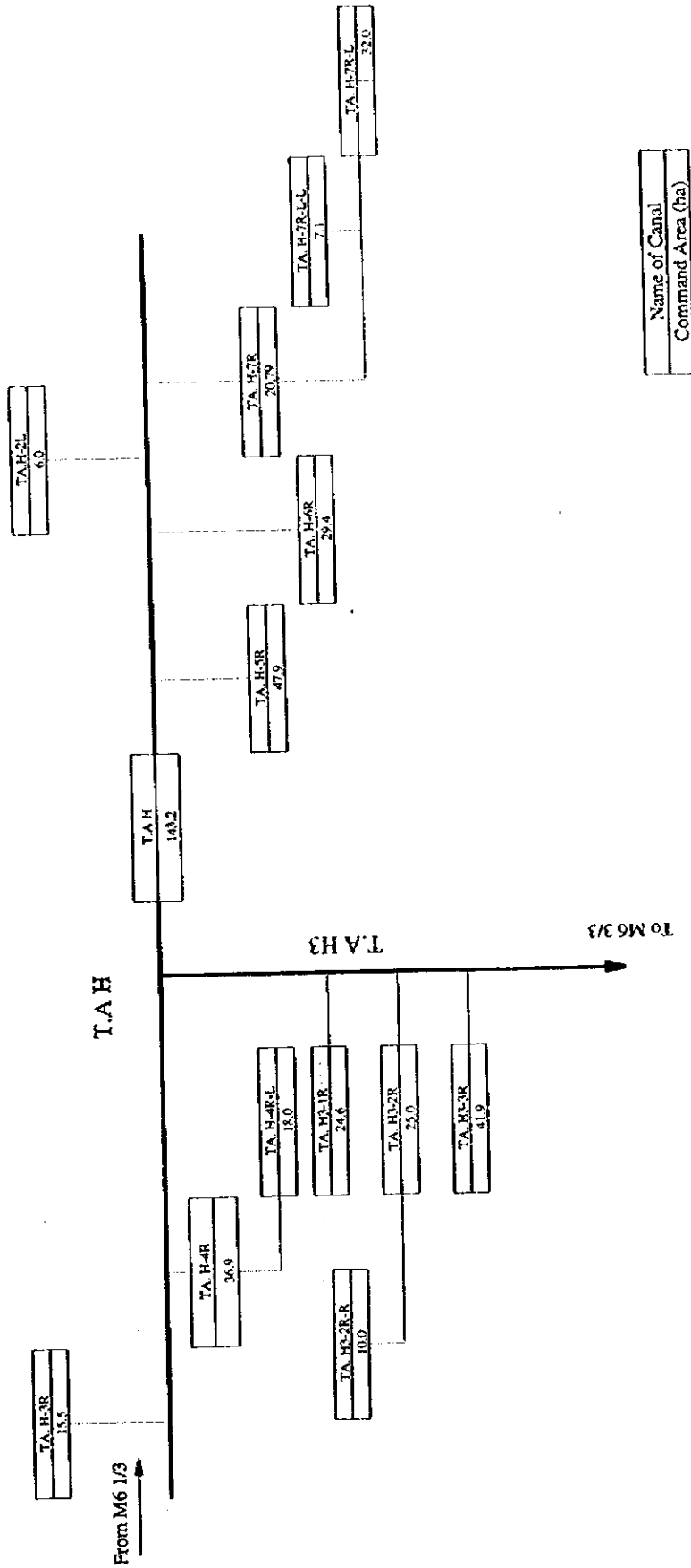
Fig. II-2 (7/12)

Irrigation Water Distribution Diagram  
IADP Pulau Pinang / Muda Irrigation Scheme KAWASAN M6 (1/3)



Irrigation Water Distribution Diagram  
 IADP Pulau Pinang / Muda Irrigation Scheme KAWASAN M6 (2/3)

Fig. II-2 (8/12)



**Irrigation Water Distribution Diagram**  
**IADP Pulau Pinang / Muda Irrigation Scheme KAWASAN M6 (3/3)**

**Fig. II-2 (9/12)**

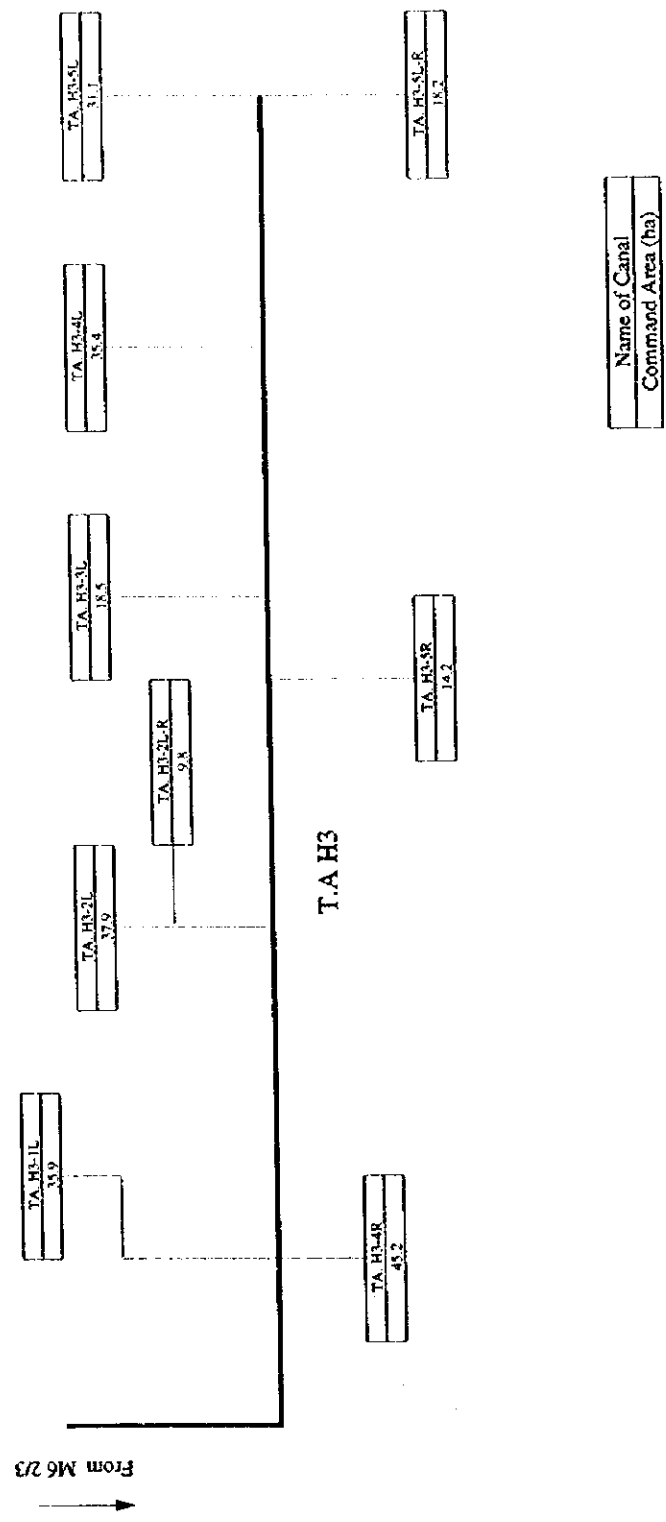


Fig. II-2 (10/12)

Irrigation Water Distribution Diagram  
IADP Pulau Pinang / Pinang Tunggai Irrigation Scheme KAWASAN P1A, P2

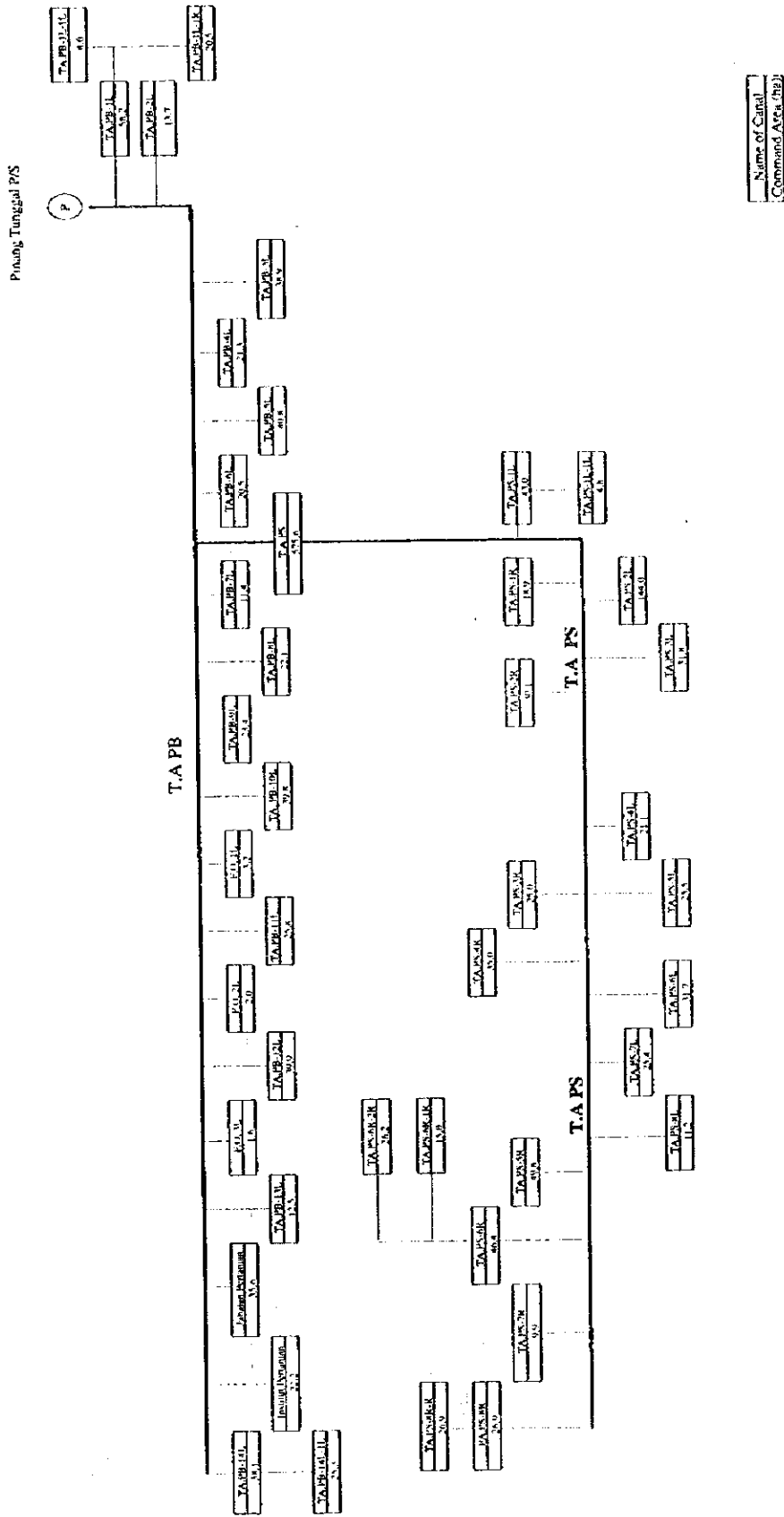




Fig. II-2 (1/12) Irrigation Water Distribution Diagram  
IADP Pulau Pinang / Kulim Irrigation Scheme

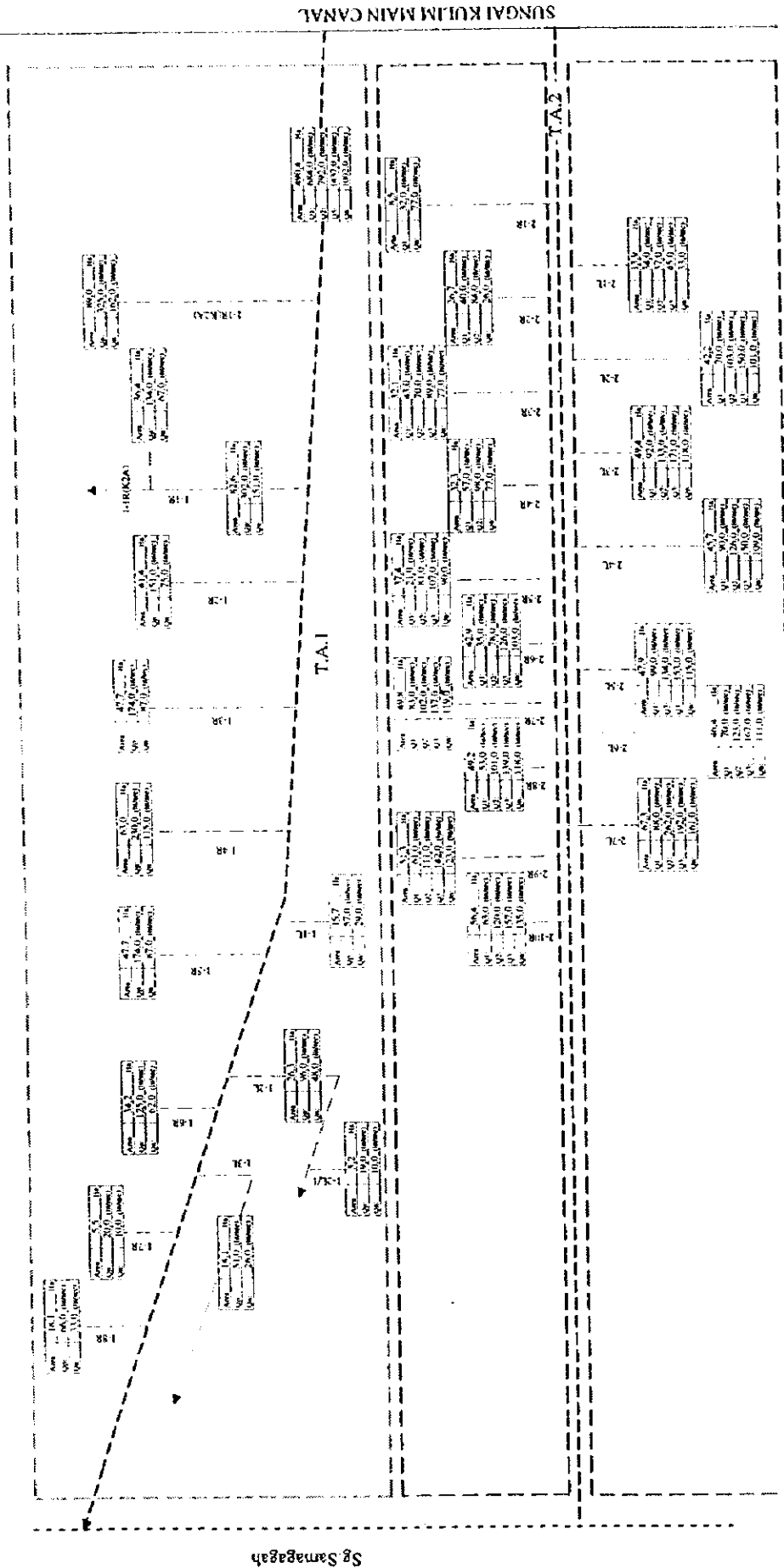
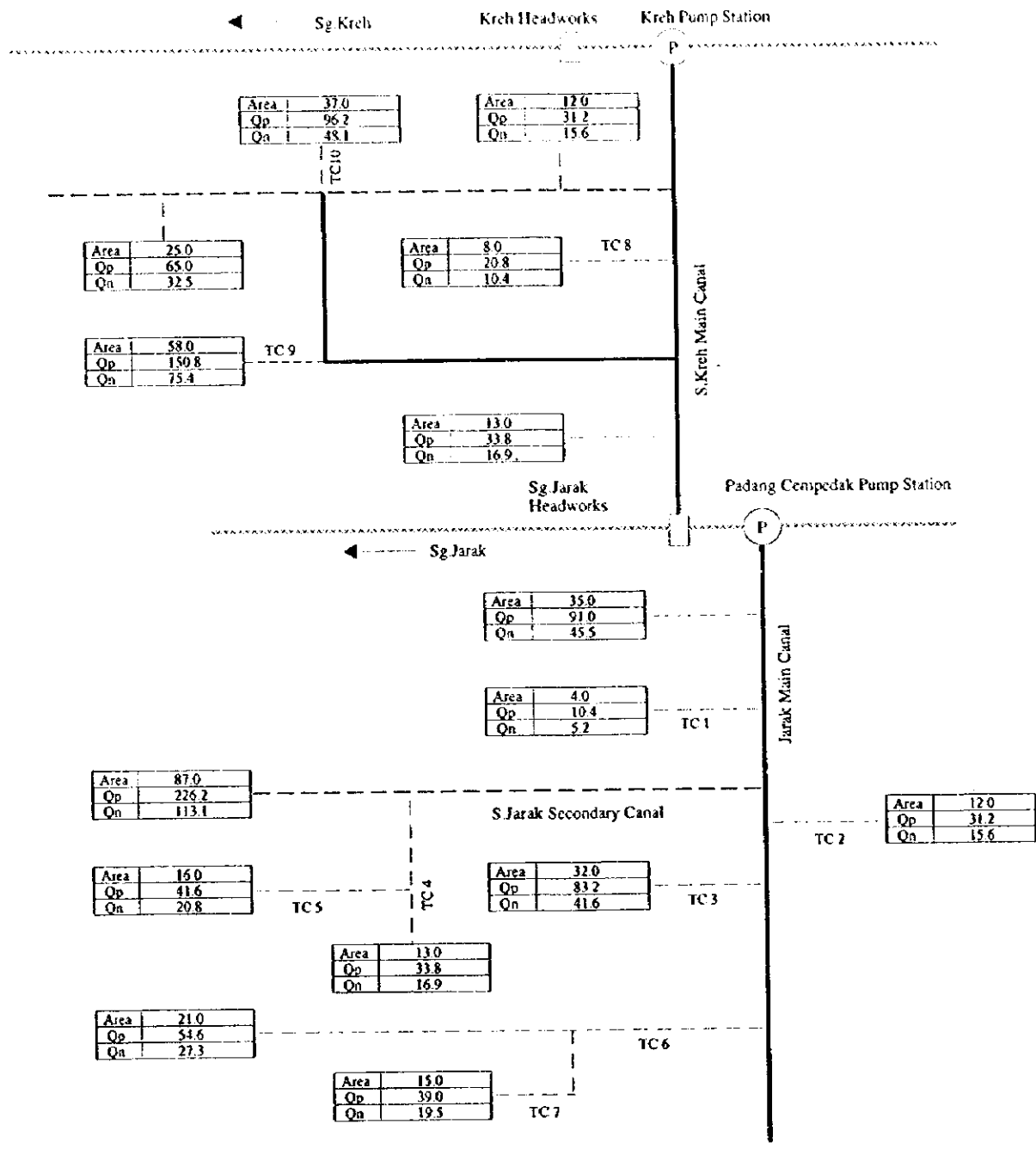


Fig. II-2 (12/12)

### Irrigation Water Distribution Diagram IADP Pulau Pimang/Sungai Jarak Sub-Scheme



**LEGEND**

Command Area	(ha)
Presaturation	(lit/sec)
Normal Supply	(lit/sec)

Fig. H-3 (1/2)

Drainage Diagram  
Pulau Pinang Scheme, Block M1, M2, M3, M4, M5 & M6

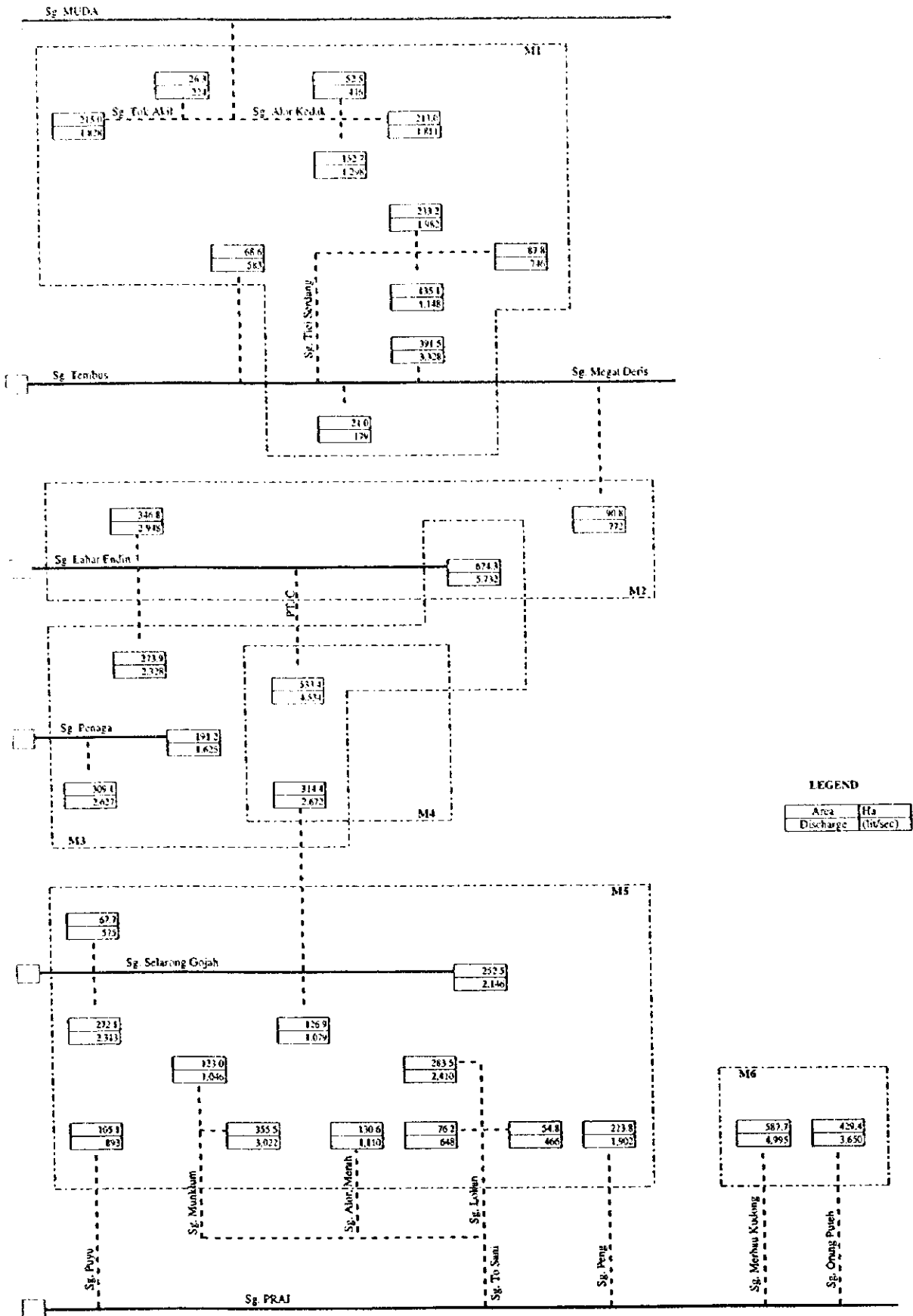
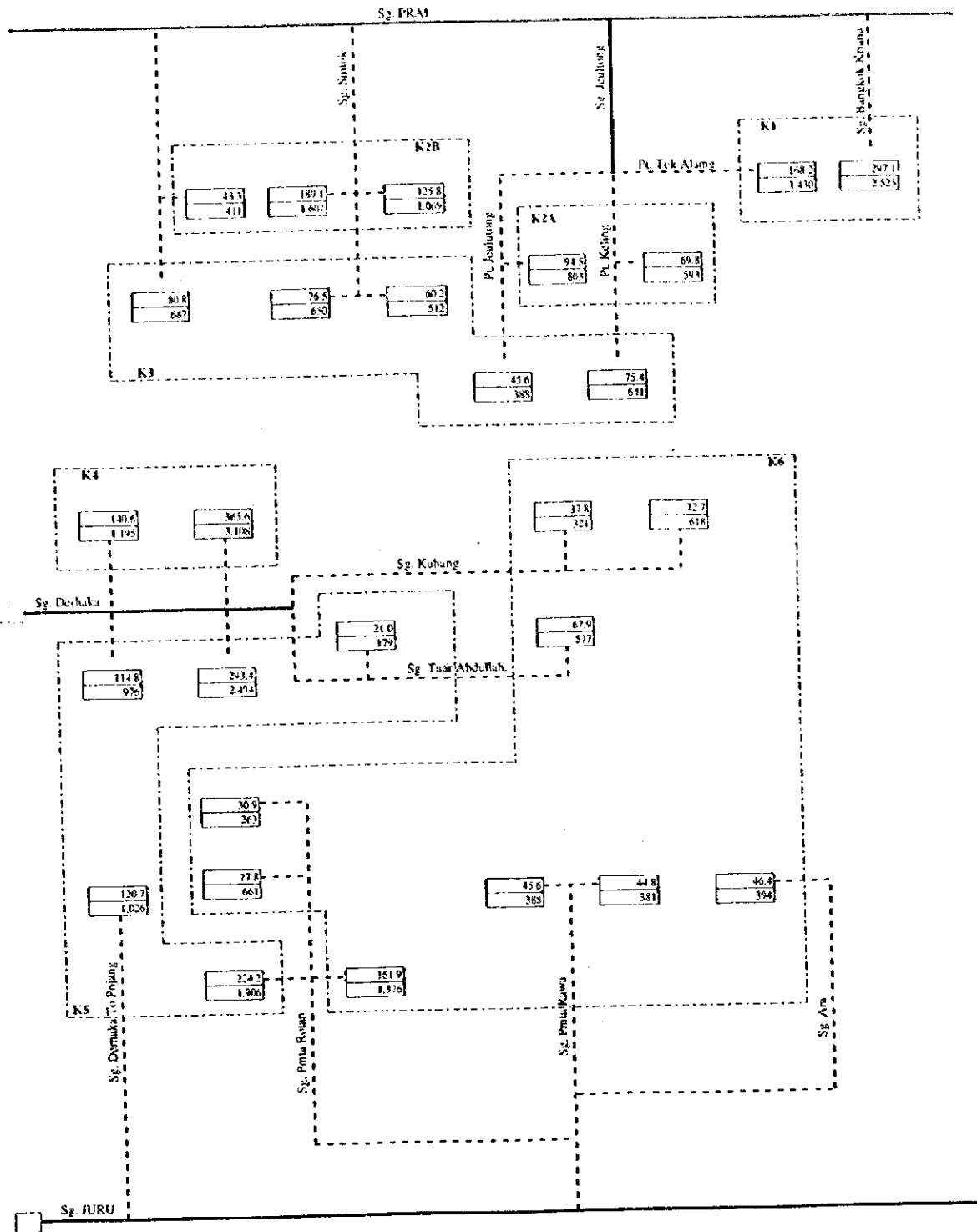


Fig II-3 (2/2)

Drainage Diagram  
Pulau Pinang Scheme, Block K1, K2, K3, K4, K5 & K6



LEGEND

Area	Ha
Discharge	(lit/sec)

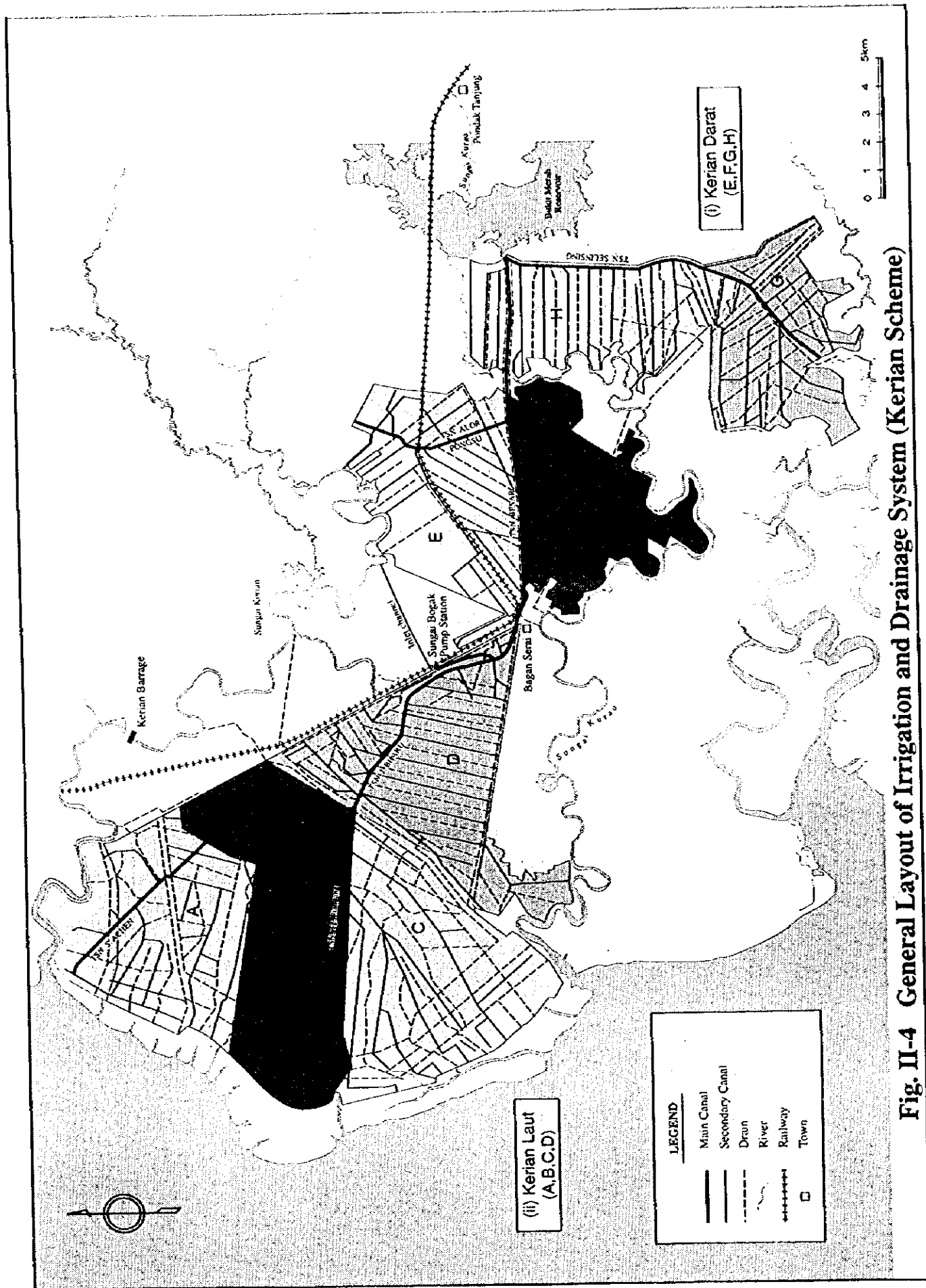


Fig. II-4 General Layout of Irrigation and Drainage System (Kerian Scheme)



Fig. II-5 (1/2)

IRrigation Water Distribution Diagram  
Kerian Scheme Block E, F, G and H

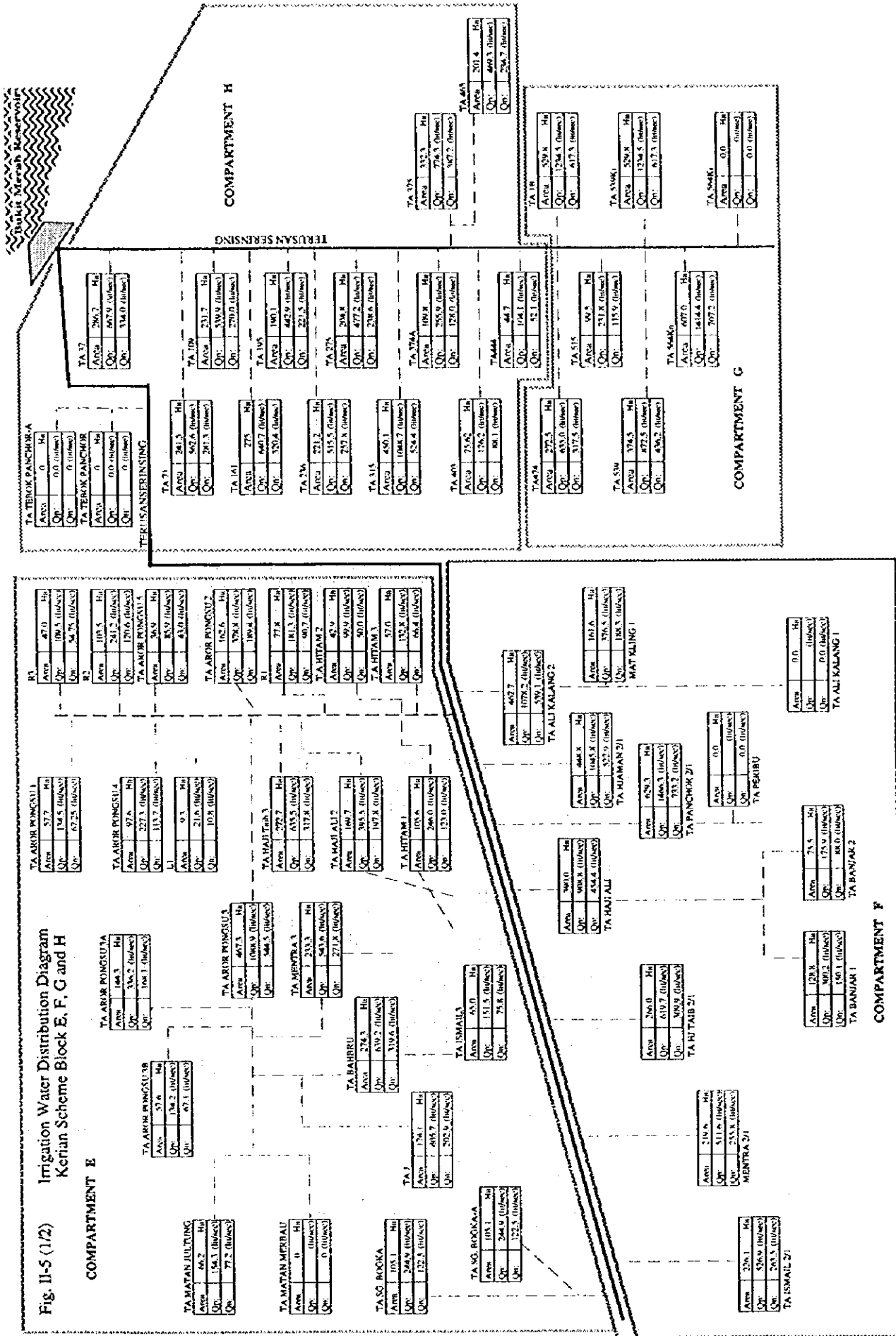
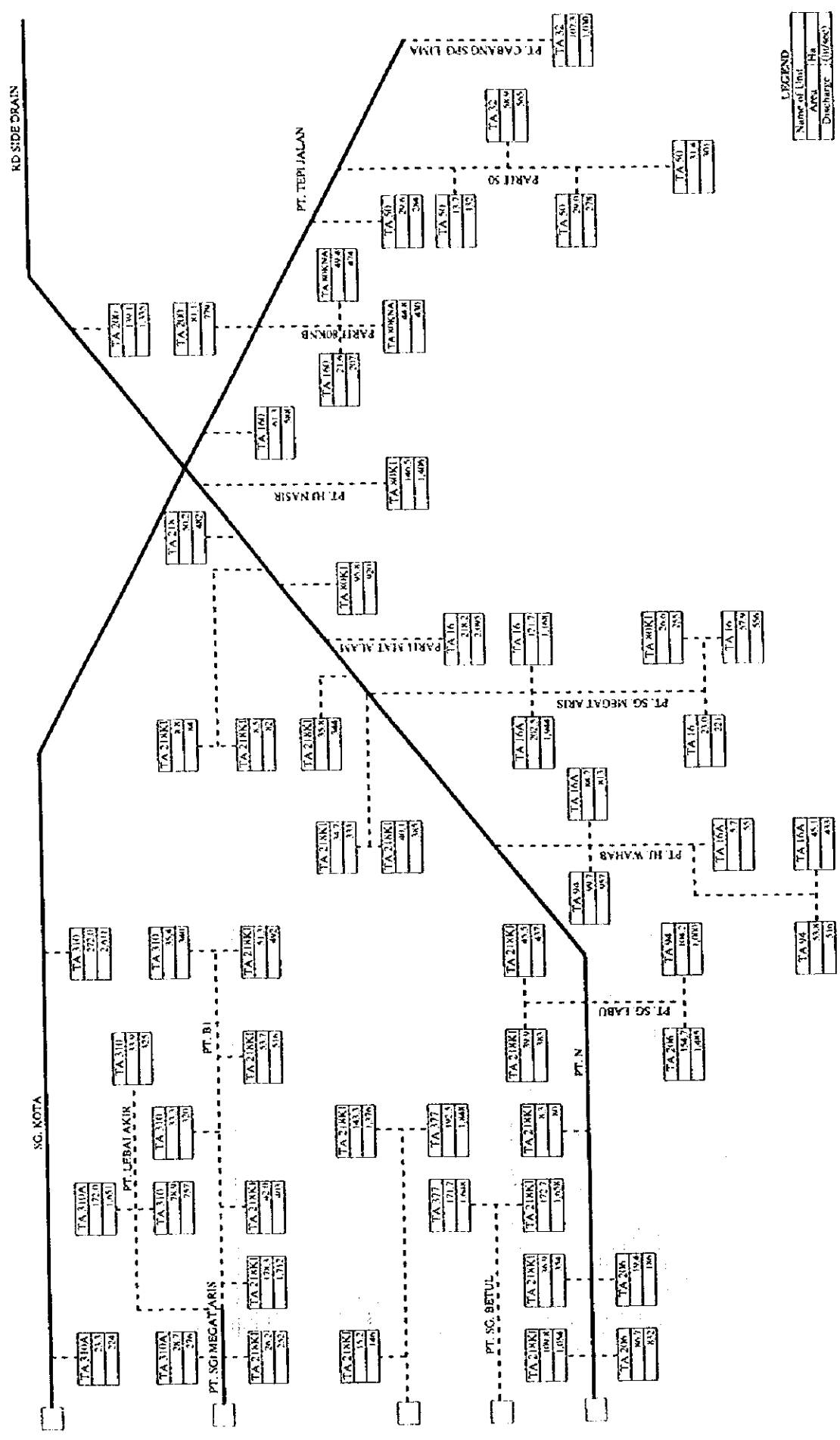








Fig. II-6 (2/8) Drainage Diagram  
Kenian Scheme, Compartment B



LEGEND

Name of Unit	Ha
Area	(Ha)
Discharge	(lit/sec)

Fig. II-6 (3/8)

Drainage Diagram  
Kerian Scheme, Compartment C

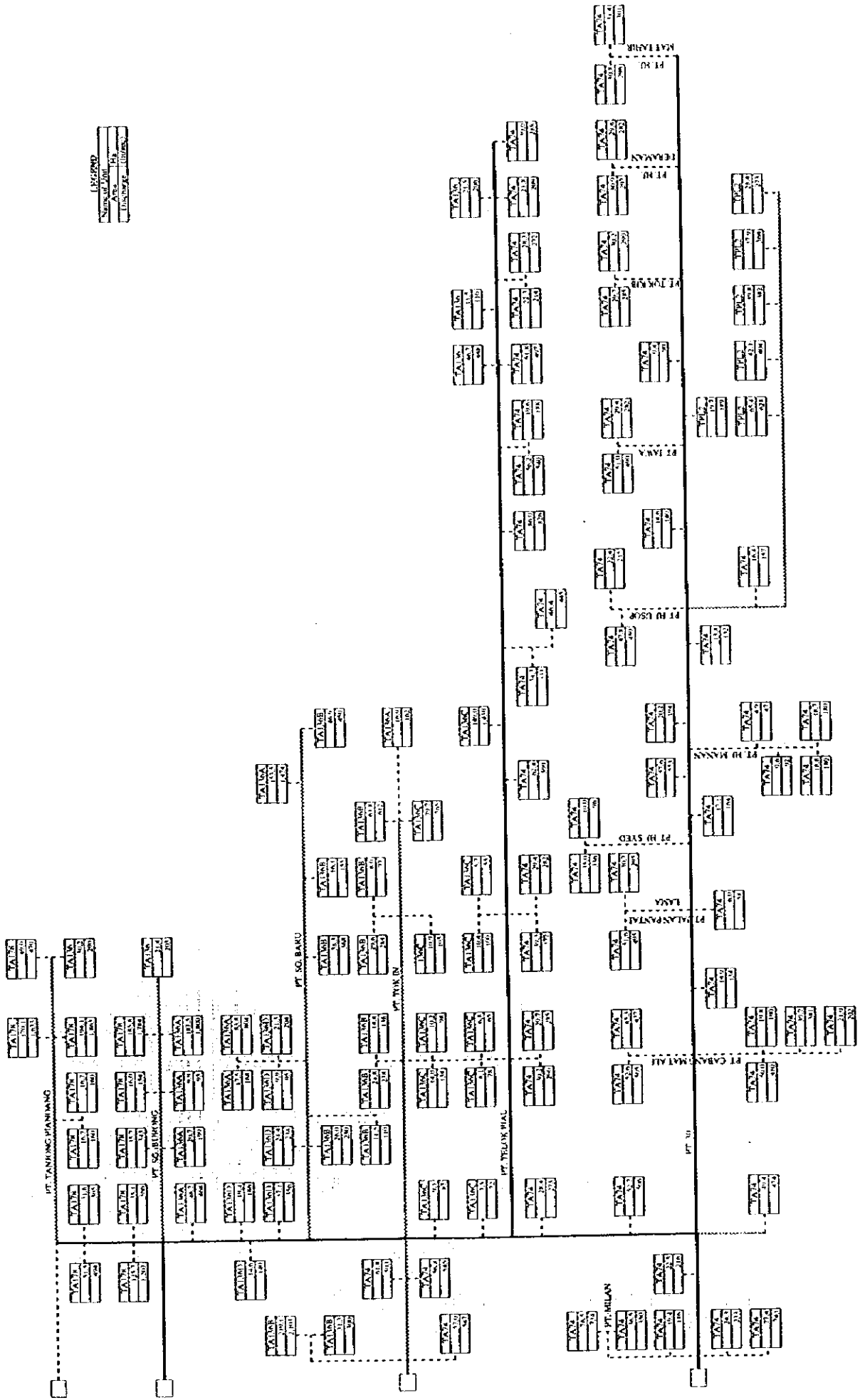
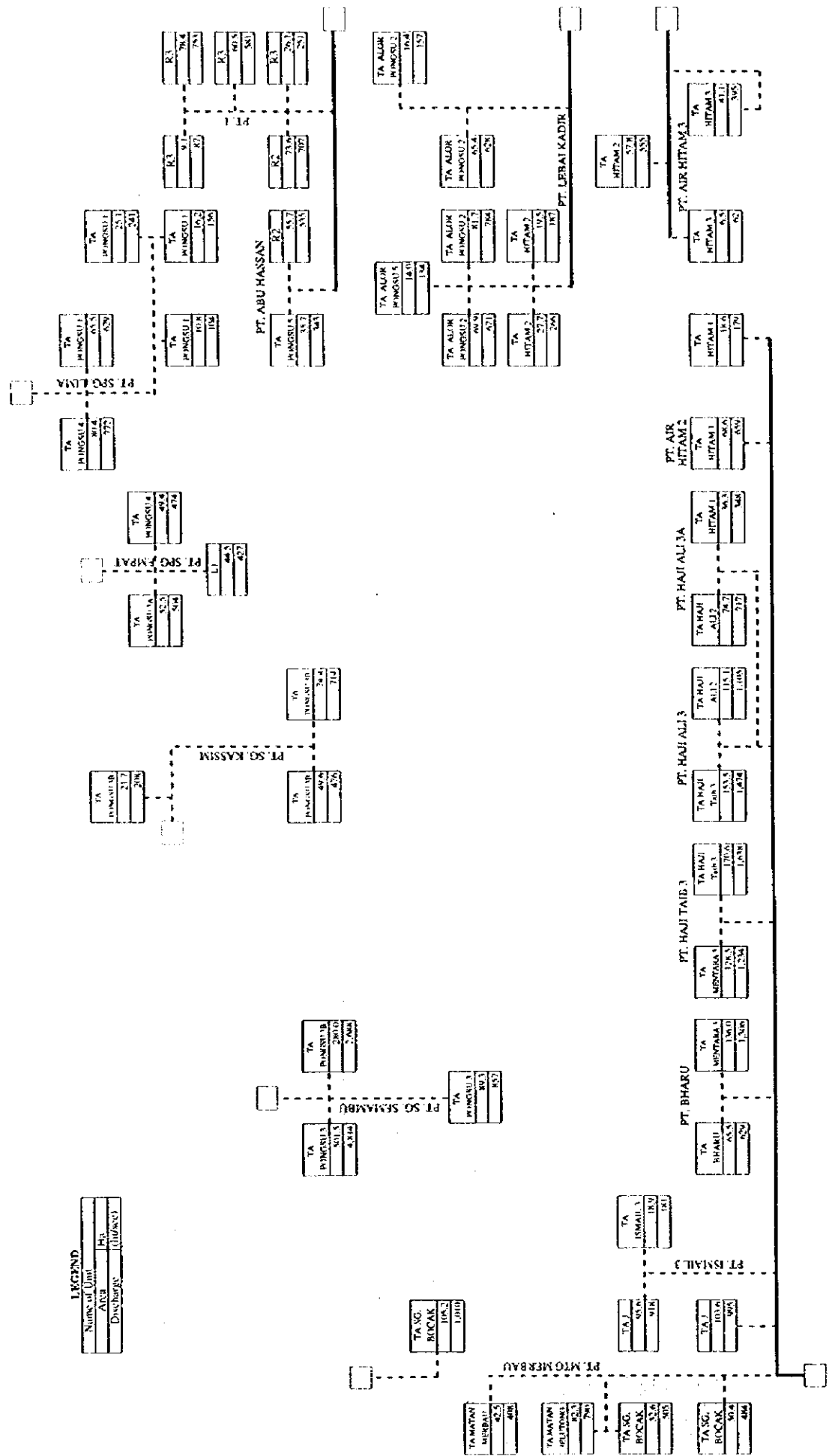




Fig. II-6 (5/8)

Drainage Diagram  
Kerian Scheme, Compartment E

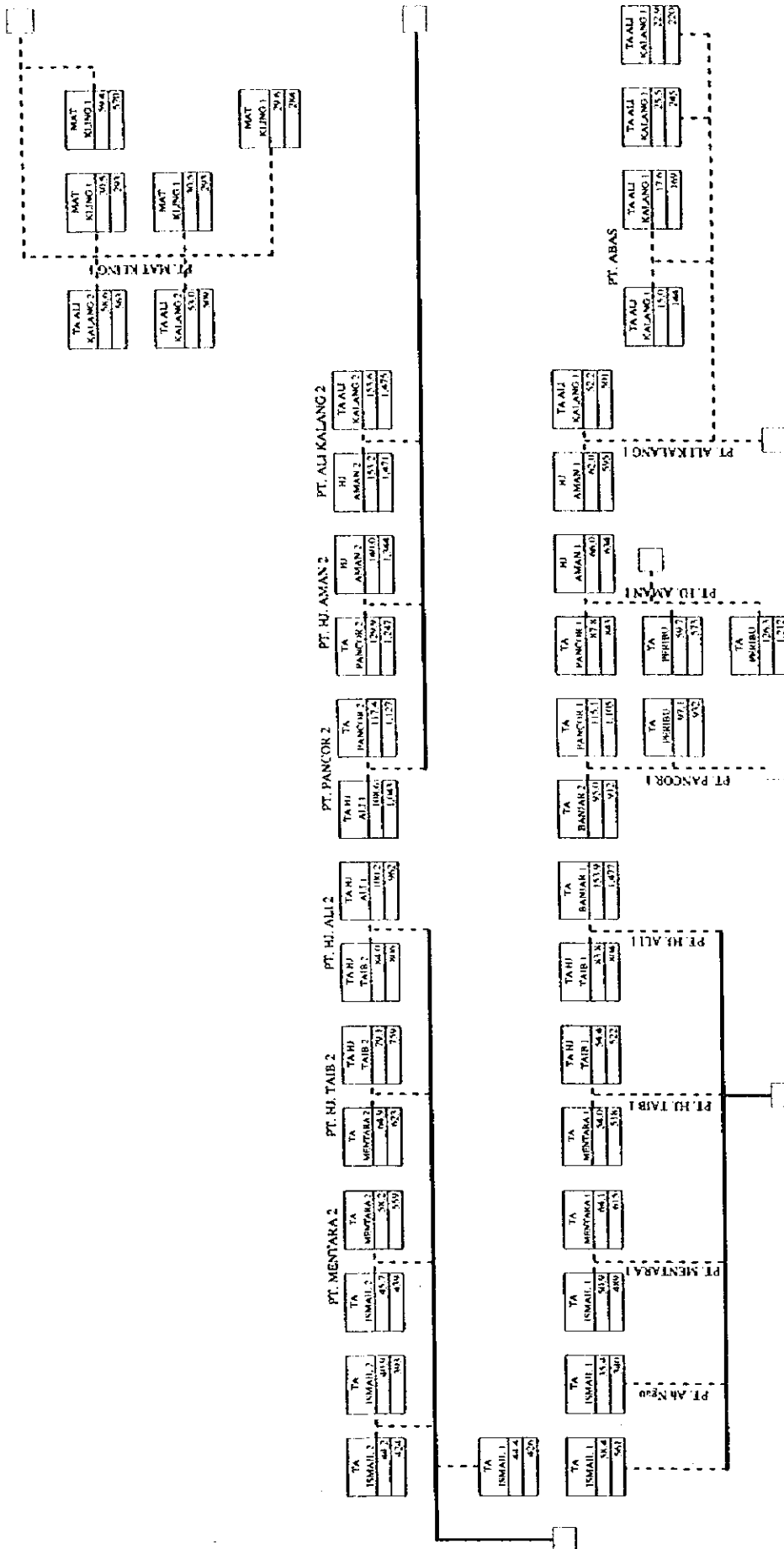


LEGEND

Name of Unit	
TA	Area (Hektar)
PINGSU	Discharge (Litres/Sec)

Drainage Diagram  
Kerian Scheme, Compartment F

Fig. II-6 (6/8)

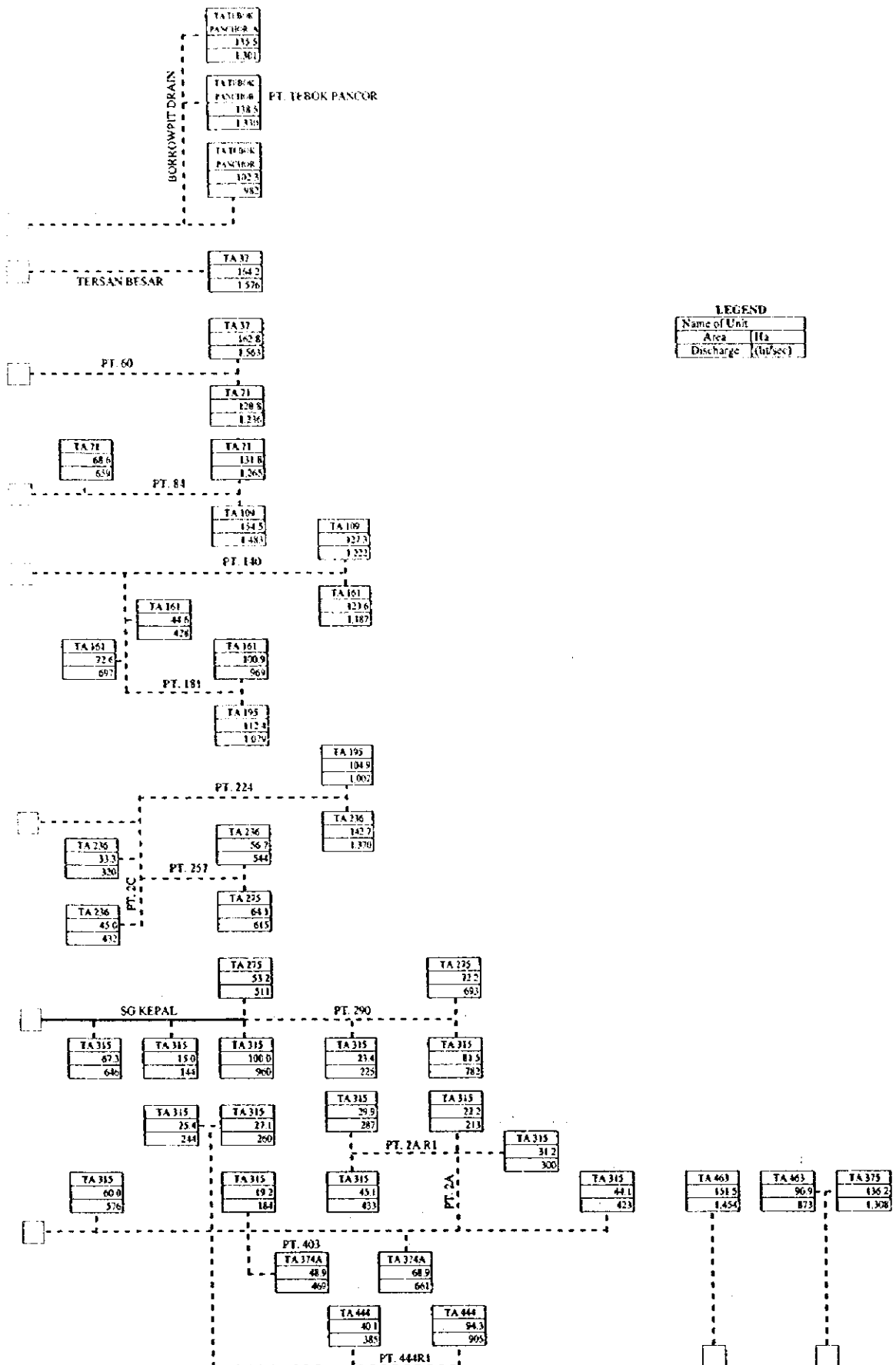


LEGEND  
Name of Unit  
Area  
Discharge (liters/second)

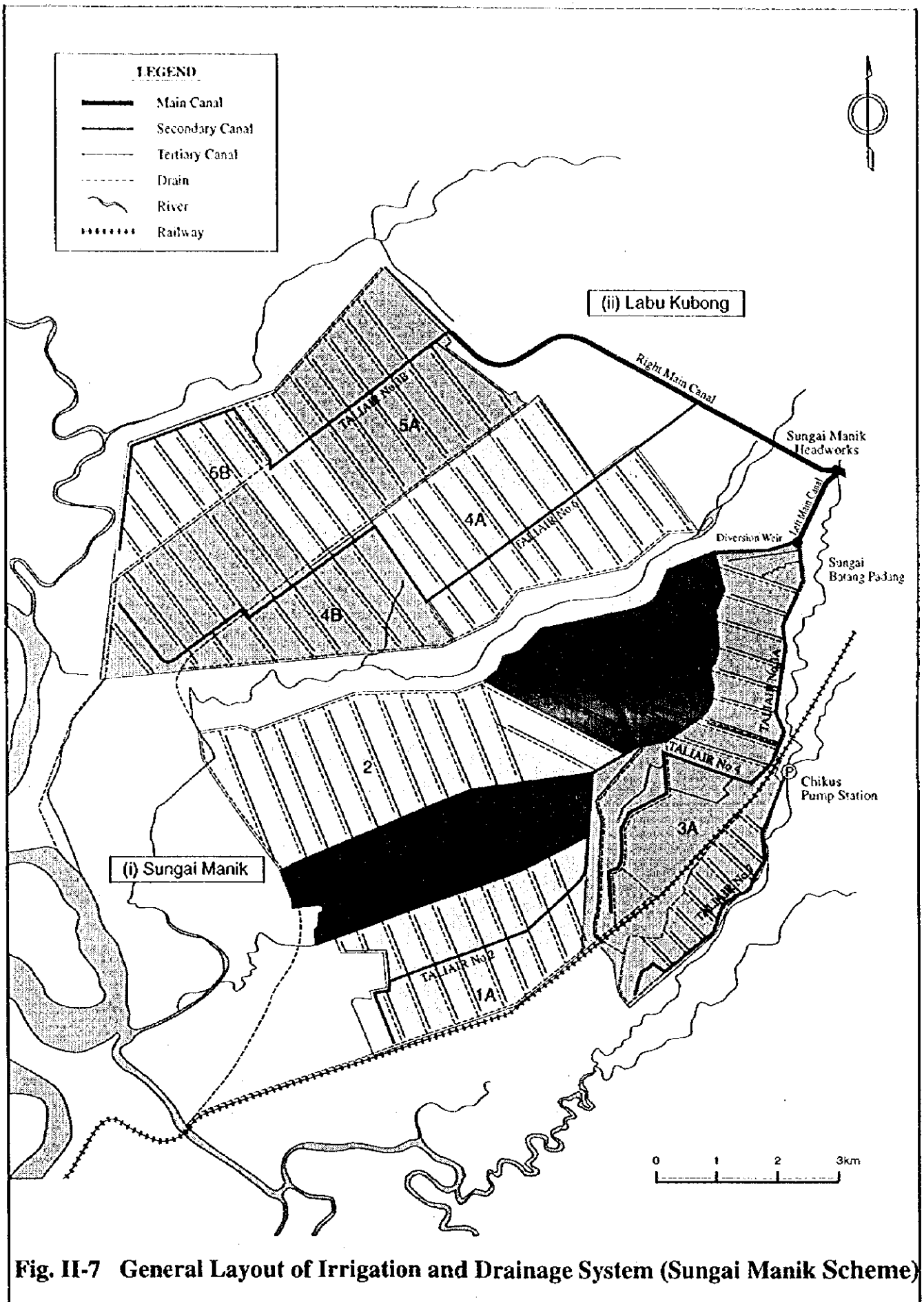


Fig. II-6 (8/8)

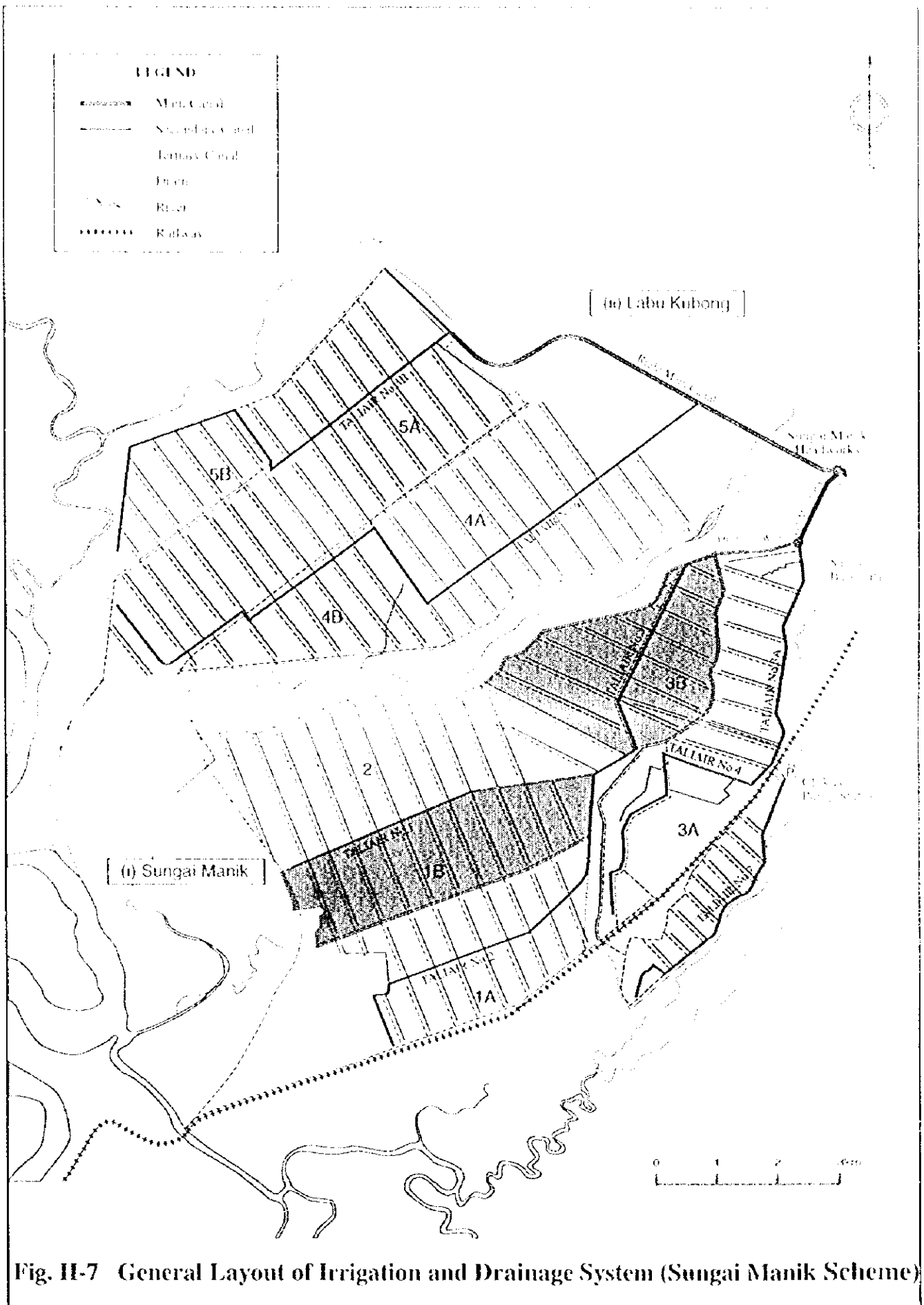
Drainage Diagram  
Kerian Scheme, Compartment II





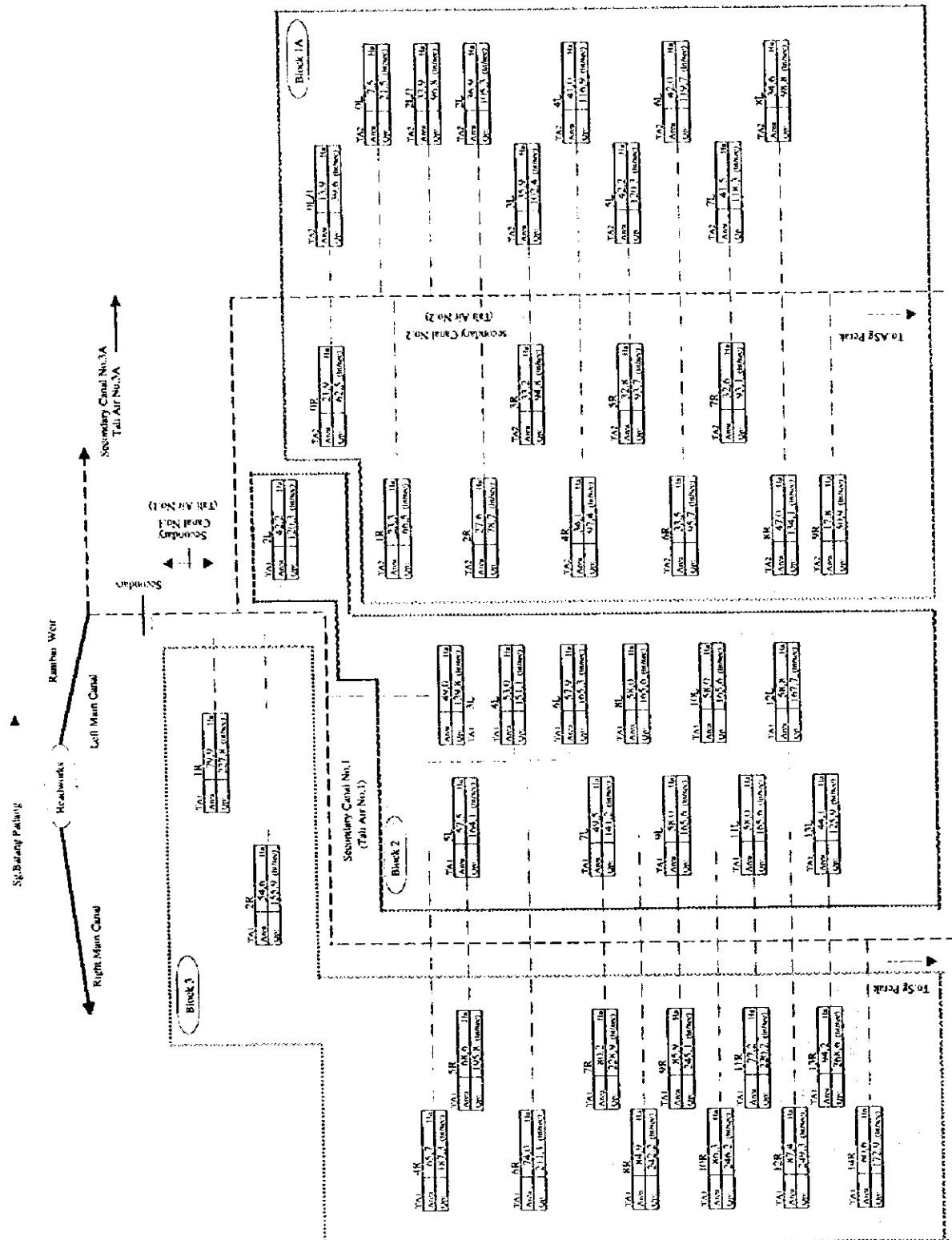


**Fig. II-7 General Layout of Irrigation and Drainage System (Sungai Manik Scheme)**



**Fig. II-7 General Layout of Irrigation and Drainage System (Sungai Manik Scheme)**

Fig. II-8 (1/4) Irrigation Water Distribution Diagram  
Sungai Manik Scheme, Block-1A, 1B & 2



**LEGEND**  
 Name of service Unit  
 Command Area (ha)  
 Discharge (m³/sec)

Fig. II-8 (2/4)  
Irrigation Water Distribution Diagram  
Sungai Manik Scheme, Block-3A & 3B

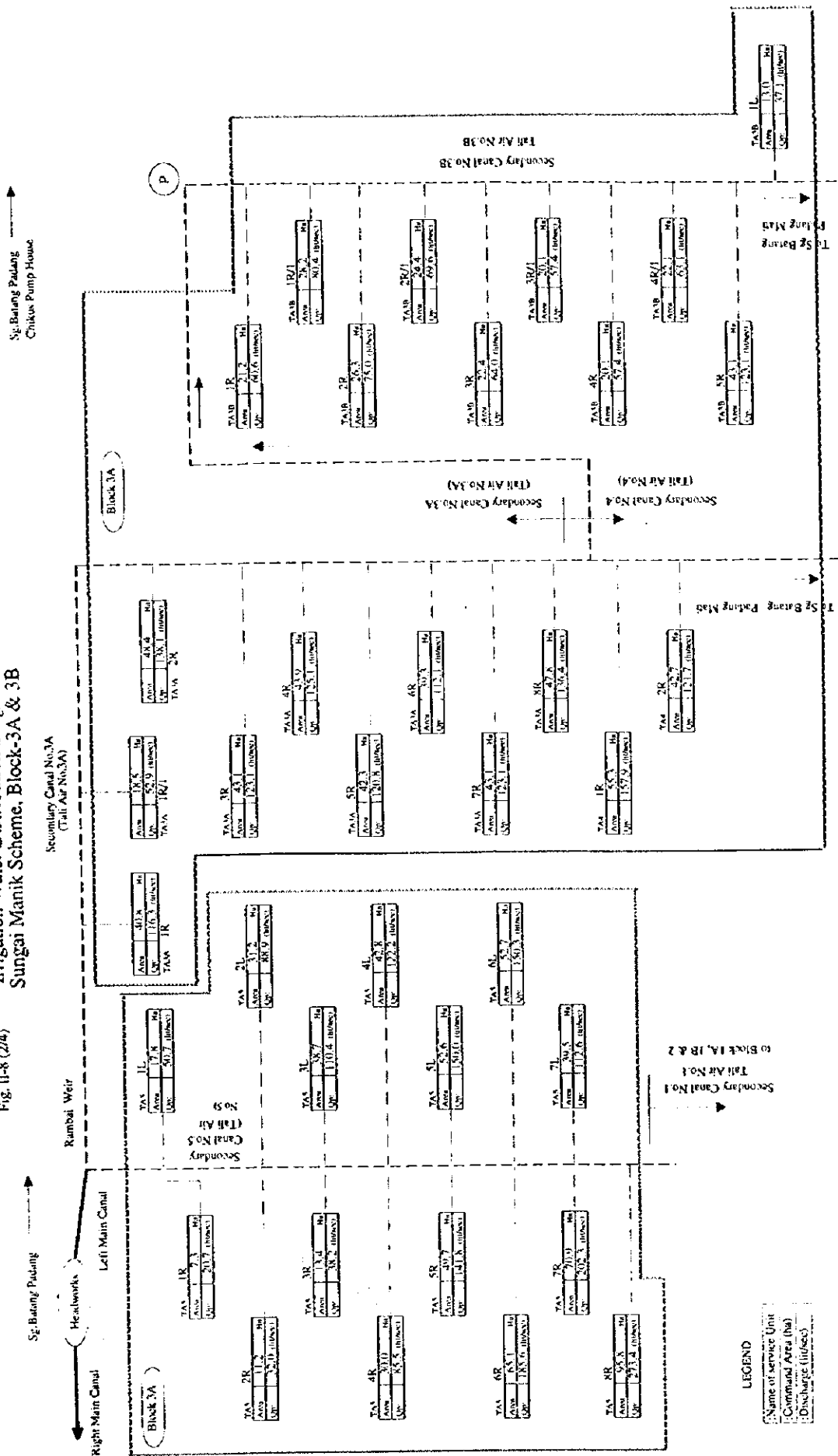


Fig. II-8 (3/4)

Irrigation Water Distribution Diagram  
Sungai Manik Scheme, Block-4A & 4B

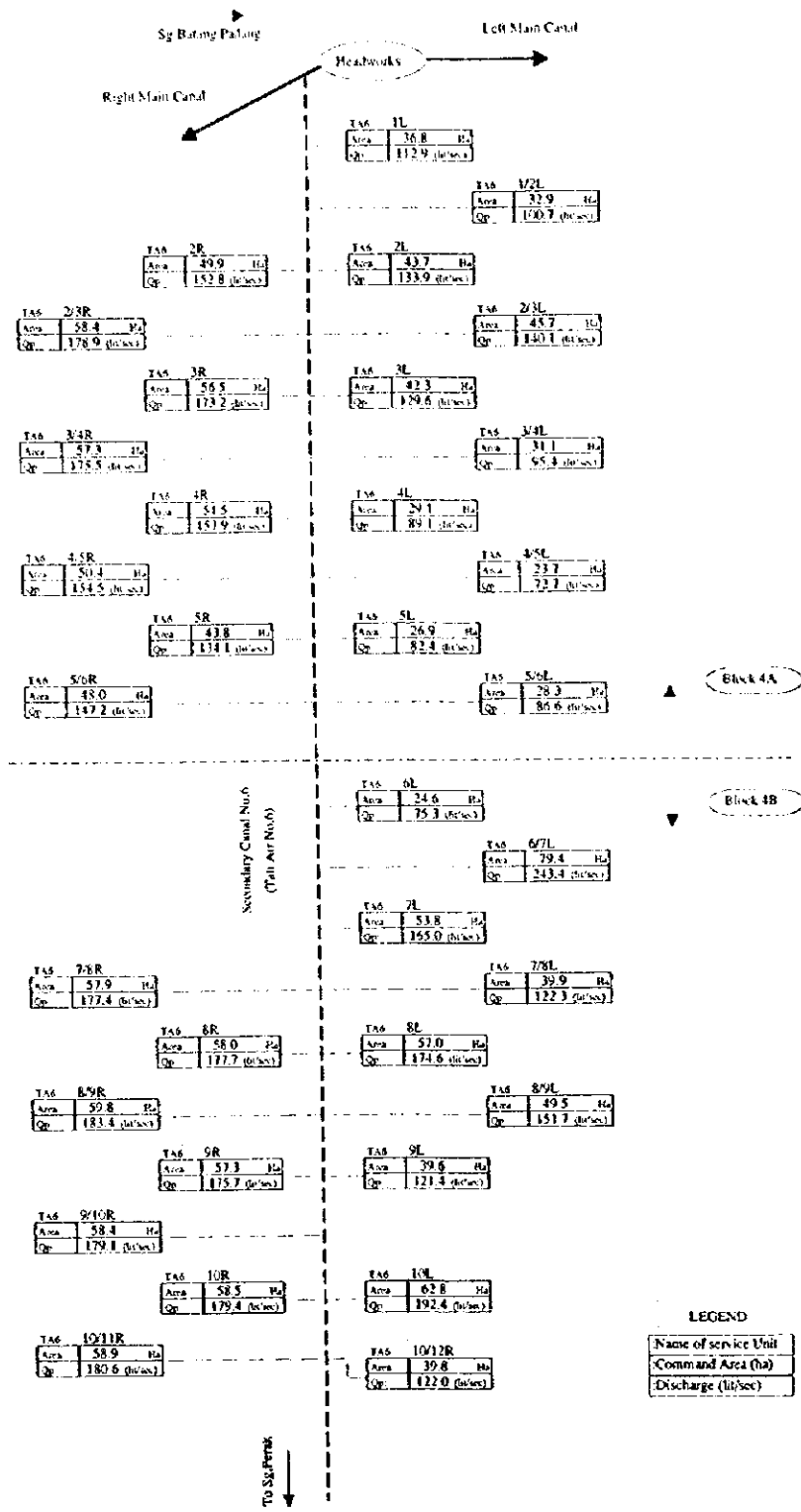


Fig. II-8 (4/4) Irrigation Water Distribution Diagram  
Sungai Manik Scheme, Block-5A&5B

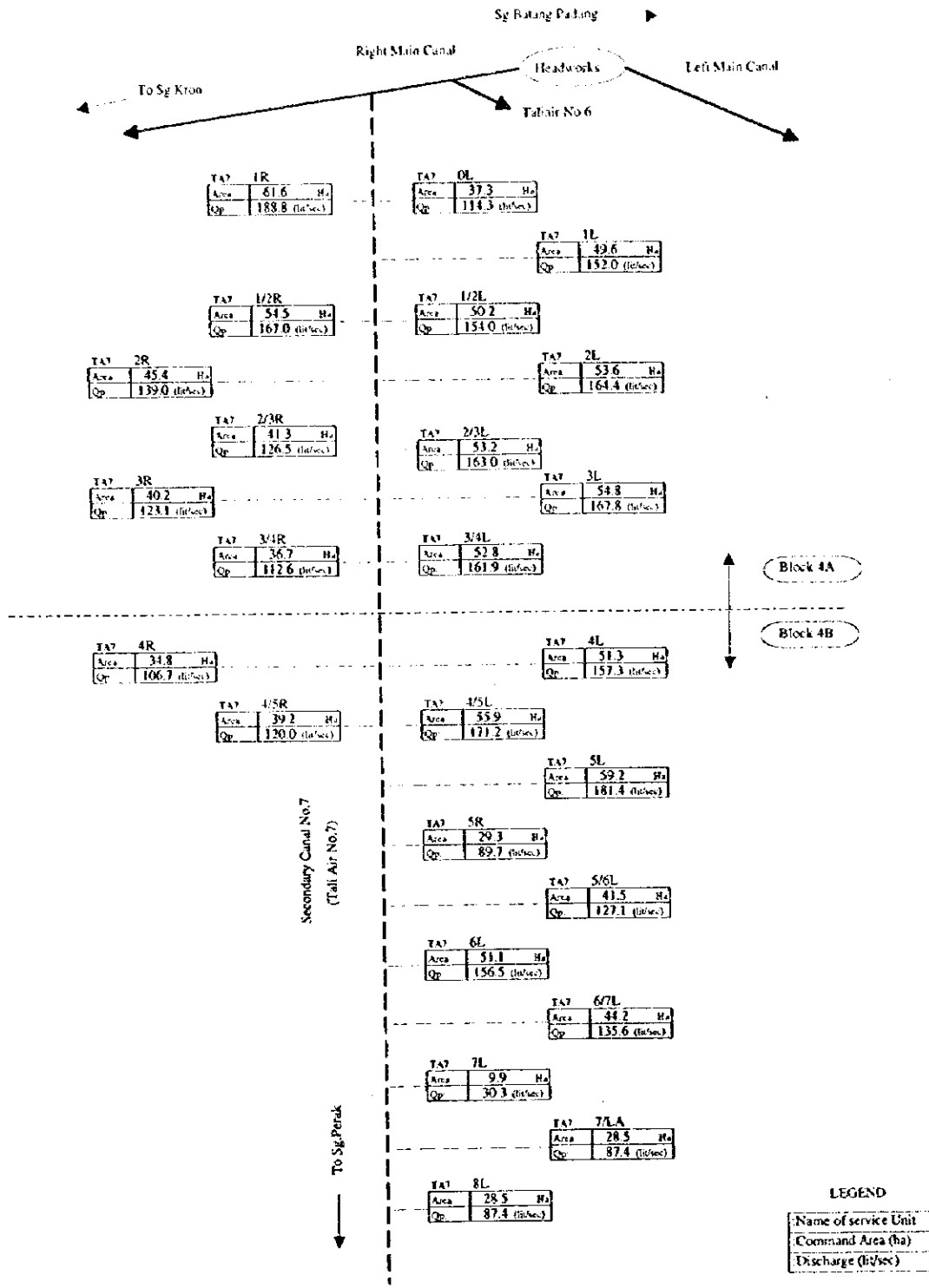


Fig. II-9 (1/2)

Drainage Diagram

Sungai Manik Scheme, Block 1A, 1B, 2, 3A & 3B

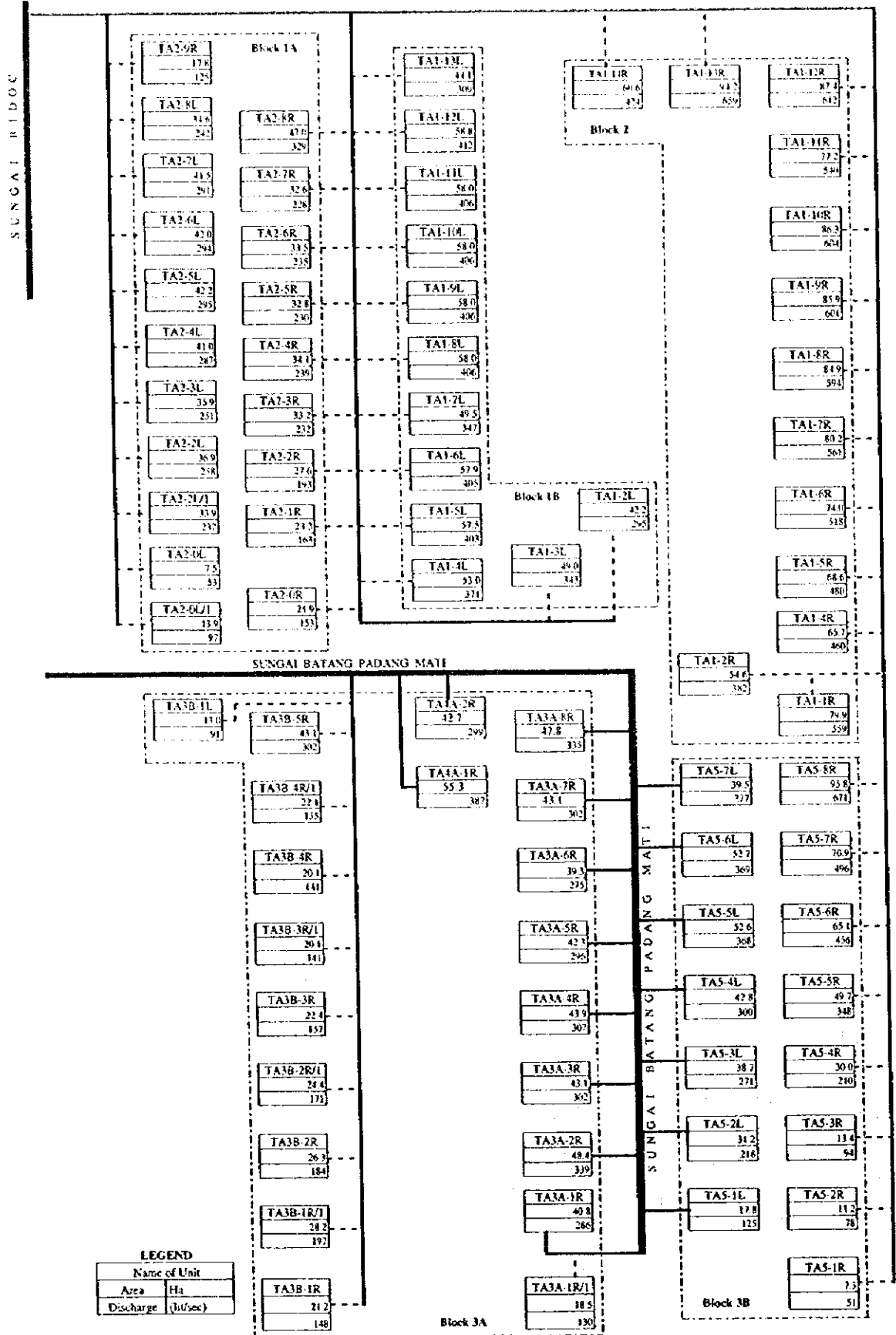


Fig. II-9 (2/2)

Drainage Diagram  
Sungai Manik Scheme, Block 4A, 4B, 5A & 5B

